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PUBLIC MEETING

BEFORE THE

CALIFORNIA ENERGY RESOURCES CONSERVATION

AND DEVELOPMENT COMMISSION

TRANSPORTATION COMMITTEE

CALIFORNIA ENERGY COMMISSION

HEARING ROOM A

1516 NINTH STREET

SACRAMENTO, CALIFORNIA

THURSDAY, NOVEMBER 30, 2006

9:00 A.M.

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PETERS SHORTHAND REPORTING CORPORATION (916) 362-2345

COMMISSIONERS PRESENT

Jeffrey Byron, Commissioner

STAFF

Mr. Al Alvarado

Ms. Susan Brown, representing Commissioner Boyd

Mr. Gerry Bemis

ALSO PRESENT

Mr. Bud Beebe, Sacramento Municipal Utility District

Mr. Bill Coleman, Planktos, Inc.

Ms. Karen Douglas, Environmental Defense

Mr. Steve Brink, California Forestry Association

Mr. John Fooks, Sempra Global Enterprises

Mr. John Grattan, Grattan, Law & Governmental Relations

Mr. Ivor John, Ryerson, Master & Associates

Mr. Bruce McLaughlin, California Municipal Utility
Association

Mr. Mark Nordhem, Chevron, Western States Petroleum
Association

Mr. Al Pak, Sempra Global Enterprises

Mr. Mike Pretto, Silicon Valley Power

Mr. Gary Schoonyan, Southern California Edison

Mr. Webster Tasat, Air Resources Board

Ms. Kathy Treleven, Pacific, Gas & Electric

Mr. Chuck White, Waste Management

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PROCEEDINGS

COMMISSIONER BYRON: Good morning, everyone.

Allow me to introduce myself. I'm Jeff Byron, and I'm the newest member of the California Energy Commission.

Unfortunately Commissioner Boyd, the presiding member of the Transportation Committee is not here with us this morning. I think he's probably in the southern hemisphere, Brazil. However, with me is Susan Brown, his senior advisor. And together we comprise the Transportation Committee.

This is a workshop on Greenhouse Gas Emissions Inventory and Update. And I'd like to thank you all for being here this morning.

If I could, I'm just going to give a little bit of background with regard to what we're doing this morning.

The purpose of this workshop is provide stakeholders and other interested parties with the opportunity to comment on our recent Greenhouse Gas Emissions Inventory Report; and it spans 1990 to 2004. And it also includes some projections going forward to 2010 and 2020. Many of you may know, however it's sort of news to me in the last few months, that Senate Energy Bill 1771, which was passed by the Legislature back in 2002,

1 required the Energy Commission to update its greenhouse
2 gas inventory in January 2002 and then every five years
3 thereafter; and also conduct public workshops such as
4 this.

5 In 2002, the Legislature passed Assembly Bill
6 1803, requiring the Air Resources Board to take on the
7 responsibility for California's greenhouse gas inventory
8 commencing January 1st of next year.

9 So actually I apologize. The reason I was a few
10 minutes late was that I was having a breakfast meeting
11 with the Air Resources Board Executive Director. This
12 workshop represents somewhat of a handoff, if you will.

13 And we're looking forward to comments and input
14 from our members of the audience here today. But before
15 we do that, of course we've got an agenda; that I assume,
16 Gerry, everybody has access to. And Gerry Bemis will be
17 taking us through our agenda. There's a period for public
18 comments, that it looks as though it's around 11:30. And
19 we hope to wrap this up by 1 o'clock.

20 Before I turn it over to, Gerry, Susan, is there
21 anything that you want to add or --

22 MS. BROWN: No, only to thank you. Thank you all
23 for coming on behalf of Commissioner Boyd, who is very
24 interested and engaged in the topic of climate change in
25 general and certainly our responsibilities under the

1 statute on the inventory. And he will remain very active
2 in the Climate Action Team, which is the Governor's team
3 working under the direction of Cal EPA, in the months
4 ahead. So we're very interested in hearing your input
5 comments today.

6 COMMISSIONER BYRON: Thank you.

7 So, Gerry, if you will take us through the
8 agenda. It's all yours.

9 (Thereupon an overhead presentation was
10 Presented as follows.)

11 PROGRAM SPECIALIST III BEMIS: Well, thank you
12 very much. And I want to also add my welcome to everybody
13 to come to this meeting to help me finalize the Greenhouse
14 Gas Emissions Inventory Report.

15 A couple of things to say before we really get
16 started, is that we've got this canned presentation I have
17 to make.

18 Good morning, everybody. We have just a few
19 housekeeping items before we begin.

20 For those of you who are not familiar with this
21 building:

22 The posted restrooms are located right outside
23 the doors, right over here. There's a snack bar on the
24 second floor under the white awning.

25 If you wish to go to the snack bar and you've got

1 the green tags on, all you have to do is just mention to
2 the security guard that you want to go and get a quick cup
3 of coffee, and you can just go on up to the snack bar.
4 But he doesn't want you loitering up there or meeting up
5 there. He just wants' you going up there and coming back
6 down to the first floor.

7 Lastly, in the event of an emergency and the
8 building is evacuated, please follow our employees to the
9 appropriate exits. We will reconvene in Roosevelt Park
10 located diagonally across the street from this building.
11 Please proceed calmly and quickly, again following the
12 employees with whom you are meeting to the safe -- to exit
13 the building.

14 Thank you. That's part of our required
15 housekeeping.

16 For those of you who may be listening in on the
17 phone, we have two ways of accessing this meeting. One is
18 via the webcast, which is in the lower left part of our
19 main page. There's a little link there to link to the
20 webcast.

21 Also, if you're listening on the phone without
22 the webcast, you can access the presentation materials
23 from our main page by linking in through the IEPR button.
24 And if you do that, next there is a link on the left that
25 says, "Documents, Reports and Publications"; click on

1 that; and then you click on today's date, November 30th,
2 and it will take you to the presentations.

3 We have two staff presentations to make, one by
4 myself and one by Al Alvarado.

5 We ran out of the approximately 30 or so copies
6 I've made of my presentation. So Jen just returned to the
7 room, and she's made more copies. They're in black and
8 white; they're a little harder to read, but hopefully
9 they're still readable. So there's more copies out on the
10 main table. If you didn't get one of the nice pretty
11 colored ones, I invite you to get a copy of that.

12 And having said that, I think we might just as
13 well proceed. My plan is to go through the presentation I
14 prepared fairly quickly. There's a lot of details. So I
15 don't really want to bog the meeting down into all the
16 level of details that we could get into. If anybody has
17 any particular thing they want to investigate in more
18 depth, you are invited certainly to contact me after this
19 meeting to go over things in more detail. If you've got a
20 comment that you wish to make at the public presentation
21 portion, certainly do that. And we'll take the best notes
22 we can. But if you've really got something in depth you'd
23 want to get into, it might be best to do it on a
24 one-on-one basis.

25 So this agenda that I've prepared is an estimate

1 of the time. And my recommendation is that we just
2 proceed through the agenda as expeditiously as possible.

3 COMMISSIONER BYRON: Okay. Gerry, forgive me for
4 interrupting.

5 We may take a break at some point, out of
6 courtesy to everyone here.

7 The other thing I'd ask, because I think you're
8 more knowledgeable of this than I, which -- this is
9 somewhat of a joint effort with the Energy Commission and
10 the Air Resources Board. It's kind of a handoff of sorts.
11 I understand they have a similar workshop on inventory
12 tomorrow. Would you -- if you know who they are here,
13 would you mind introducing members of the Air Resources
14 Board that are in the audience.

15 PROGRAM SPECIALIST III BEMIS: Actually -- yes.
16 A member of the Air Resources Board staff will be making a
17 presentation later on in the agenda. And they've already
18 indicated that that would really be the appropriate time
19 to introduce their membership. But know Peggy's here and
20 Webster Tasat is here and some others, I believe. But
21 they can do that.

22 COMMISSIONER BYRON: All right. Welcome to all
23 of you.

24 --o0o--

25 PROGRAM SPECIALIST III BEMIS: Okay. I might as

1 well just begin.

2 Okay. This basically an overview of what we
3 intend to accomplish today. We've just done the welcome.
4 And I will spend some time talking about the basis of the
5 inventory in a summary level.

6 COMMISSIONER BYRON: Can you bring the lights
7 down a little bit, whoever has control -- do you have
8 control of that?

9 PROGRAM SPECIALIST III BEMIS: I have the lights.

10 COMMISSIONER BYRON: Good. Thank you.

11 Excellent.

12 PROGRAM SPECIALIST III BEMIS: How does that
13 work?

14 Okay. I imagine some of you in the back might
15 not be able to see some of these slides.

16 So we will spend some time talking about the
17 inventory in a summary sense. Then I compare the
18 inventory to my previous inventory that we can call here
19 the 2005 GHG inventory. And then I compare it to the
20 Climate Action Team inventory.

21 Then Al Alvarado will speak about some
22 considerations for imported electricity. And Webster
23 Tasat from the ARB will talk about transferring the
24 inventory function to the Air Resources Board. And then
25 we have time for public comments and then any conclusions

1 and next steps. Even though I'm asking for public
2 comments to be heard at that time, if there's something
3 that I say that's really confusing, please feel free to
4 ask me to clarify that before I go on. Comments on maybe
5 what we should be doing differently, I would hope that we
6 could hold those until that public comment period.

7 --o0o--

8 PROGRAM SPECIALIST III BEMIS: Okay. Now, we're
9 going to talk about the major gases and trends and then
10 major emission categories.

11 --o0o--

12 PROGRAM SPECIALIST III BEMIS: You've probably
13 seen this report -- this pie chart in the report. It just
14 summarizes the major gases by type of gas. And the point
15 here is that according to the information that we have
16 available to us now, fossil fuel combustion of carbon
17 dioxide is the major source. New data from our PIER
18 Program, our public interest R&D, may significantly alter
19 these percentages. But for now this is the best
20 information we have available to us.

21 --o0o--

22 PROGRAM SPECIALIST III BEMIS: This is how the
23 emissions look by end-use sector -- major end-use sector.
24 And it's very similar to the previous pie chart that I had
25 published in the previous report done the year earlier

1 covering the 2002 period. This is the result for 2004.

2 --o0o--

3 PROGRAM SPECIALIST III BEMIS: This chart really
4 shows that previous chart for all the years from 1990
5 through 2004 laid out in the form of a trend chart. And
6 you can see that there are year-by-year variations, but
7 the overall trend is upward. The main take-home point
8 from this graph for me is that if you look at just one
9 year, you might get different results than if you look at,
10 say, maybe a three-year average. That's something to
11 think about in looking at the policies.

12 --o0o--

13 PROGRAM SPECIALIST III BEMIS: This graph you
14 haven't seen before. I added this slide to illustrate
15 that you can't just look at carbon dioxide to get a good
16 idea of overall trends. The yellow shaded area here is
17 carbon dioxide emissions from gasoline consumption. The
18 purplish color is nitrous oxide emitted from the exhaust
19 from burning gasoline. And you can barely see it because
20 it's almost nonexistent, but there's a little sliver there
21 for methane in the exhaust.

22 If you just look at the yellow portion, the fuel
23 carbon dioxide, you get something on the order of 17 1/2
24 percent increase from 1990 to 2004. But because the
25 nitrous oxide emissions are decreasing over that same

1 time, the net result of taking all three of these gases
2 into consideration is that it grows by about 12.3 percent.

3 I had one commenter who asked how come the
4 increase in percentages didn't match the increase in fuel
5 use. And this is the reason.

6 --o0o--

7 PROGRAM SPECIALIST III BEMIS: Next I show a --
8 how does California as a nation/state, quote-unquote --
9 Commissioner Boyd likes to use the term "Nation/State of
10 California." And so this graph is meant to show if
11 California was a nation, how would it's emissions'
12 intensity compare to other nations? And you can see
13 California in red. There was a similar chart done in the
14 1999 inventory. But this one has more countries -- I
15 forget -- the top 30 or 50, I forget which. And if you
16 notice that Texas is really high in terms of per person
17 and Russia is really high in terms of per unit of GSP.
18 And there are reasons for each one of those. I don't know
19 if we need to go into them.

20 But I think that Russian infrastructure is really
21 not very efficient. And Texas exports an awful lot of
22 their industrial processes to other states as far away as
23 New York. And gasoline's probably all the way up to New
24 York. And so per person Texas is high, but there's
25 reasons for it.

1 --o0o--

2 PROGRAM SPECIALIST III BEMIS: Now, this next
3 graph shows the historical trends from two graphs ago.
4 Just the top of that trend chart, labeled "historical"
5 here. And then some projected emissions in the dash line.
6 And two spots for California gas emission reduction goals.
7 I took the Governor's expressed goal of reducing to 2000
8 by the year to 2010 and I took my value for 2000 and
9 plotted it there under 2010. And, likewise, I did the
10 same thing for 2020. I took the 1990 commissioned
11 inventory value and plotted it there.

12 And so the difference between the dotted line,
13 vertical difference in each one of those spots gives you
14 an idea of the magnitude of reductions that would be
15 needed if this data were used for the emissions inventory
16 for the AB 32, for example, and how much reduction would
17 be needed to meet those two goals.

18 --o0o--

19 PROGRAM SPECIALIST III BEMIS: I don't know if
20 you can read this in the back of the room. But this one
21 is also in my report, but it's shown in that report as a
22 vertical page. And I just plotted it horizontally because
23 of the -- of the situation here.

24 You can see that California, which is -- if I can
25 get this right -- California is right there. It's

1 PROGRAM SPECIALIST III BEMIS: One of the nuances
2 that I wanted to focus on for a moment -- and Al will go
3 into a lot more detail in his presentation -- is the
4 effect of electricity imports and exports into California.
5 For 2001 to 2005, you notice that of the imports and
6 exports, the far right column says roughly 80 to 90 plus
7 percent are exports -- are imports. Excuse me. There are
8 some exports is the point I'm trying to make here. And
9 emissions from those exports are included in the
10 inventory, okay, because I drew a border around
11 California. And everything that happens within California
12 is included in the emissions inventory to the best of my
13 ability.

14 Just like with Texas, even though they're
15 shipping gasoline up to New York, their emissions are high
16 because those emissions are reported as part of the
17 responsibility of the State of Texas. But even though we
18 export maybe 10 percent of the energy or so that we use,
19 those emissions are included in the emissions inventory.

20 --o0o--

21 PROGRAM SPECIALIST III BEMIS: Okay. Now I'm
22 going to start talking about comparing the emissions
23 inventory to my previous emissions inventory, which was
24 published in 2005. So for convenience sake, I call it a
25 2005 inventory versus a 2006 inventory.

1 And you can see here on the residential sector,
2 that the emissions especially in the earlier years are
3 fairly close.

4 There were some reestimations done of fuel use at
5 the EIA and -- back up a step. We calculated emissions
6 based on what's called the energy balance. The energy
7 balance was developed for us by Lawrence Livermore Lab
8 under a contract marked public interest R&D folks. And I
9 took those emissions and calculated -- I'm sorry. I took
10 those BTUs and calculated emissions from the BTUs. When
11 they reassessed the data set this last summer, there were
12 some changes. And I tried to reflect those changes in
13 Appendix D. I don't think -- hopefully we don't need to
14 go into too much detail here. But if you want to see the
15 major reasons for the changes, I would encourage you to
16 read Appendix D of my 2006 report.

17 So these emissions increases in the latter years
18 are due to increased estimates of natural gas used in a
19 residential sector, compared to the previous energy
20 balance.

21 --o0o--

22 PROGRAM SPECIALIST III BEMIS: Here is the
23 comparison of the inventory for the commercial sector.
24 And, again, here the vertical axis is stretched out. It's
25 only 20 instead of 35. So these differences look bigger

1 than the previous one. But it's just because of the
2 distortion caused by the scale.

3 Later I'll show all these together on the same
4 scale, and you'll be about to see how they compare better.
5 And I've color coordinated them, so the same colors used
6 on that summary slide.

7 One of the differences here is that there appear
8 to be some data discrepancies in the earlier previous
9 energy balance that were smoothed out in the latest
10 version of the energy balance done by the contractor. So
11 that explains some of the reasons for the differences.

12 --o0o--

13 PROGRAM SPECIALIST III BEMIS: The green one is
14 industrial sector. And, again, those numbers are fairly
15 close. A few tons difference.

16 I am going through kind of quickly.

17 --o0o.

18 PROGRAM SPECIALIST III BEMIS: Here
19 transportation numbers are virtually identical, the
20 green -- the blue.

21 --o0o--

22 PROGRAM SPECIALIST III BEMIS: And this is a
23 comparison for in-state electricity and imports. We are
24 going to talk about a newer way of doing the imports. But
25 for now I used the same method I used previous times. And

1 until that new methodology gets put into place, this is
2 the best information I have available to me. And so you
3 can see the numbers are not all that different.

4 --o0o--

5 PROGRAM SPECIALIST III BEMIS: How do all these
6 compare? Now, I use the same color code -- that's why I
7 made copies in color, so you can compare them more easily.
8 But I used the same color code for each one of the bars,
9 residential, commercial, industrial, et cetera. Now
10 they're all shown on a single graph, showing the
11 differences are small sector to sector. But then, in
12 fact -- this page, this orange one is -- click on the end,
13 because I did this yesterday.

14 --o0o--

15 PROGRAM SPECIALIST III BEMIS: This shows -- and,
16 Commissioner Byron, I don't think I got you one of these.
17 This shows the previous bars all stacked vertically in one
18 color, and shows how the total inventory compares from one
19 year to the next. And you can see kind of modest
20 differences. Which it pleases me to see them this close,
21 frankly.

22 So that completes what I have for the comparison
23 to my previous inventory.

24 --o0o--

25 PROGRAM SPECIALIST III BEMIS: I thought I should

1 also compare the current inventory to the CAT inventory.
2 That's the Climate Action Team. In case any of you who
3 don't know what that means, the Climate Action Team is a
4 group of representatives from various state agencies --
5 the Executive Director of the Energy Commission, for
6 example, is the Energy Commission's representative on this
7 team -- that was put together to come up with the overall
8 policy for greenhouse gas emissions and probably was the
9 major factor which helped lead to the development of AB 32
10 of gas --

11 COMMISSIONER BYRON: Mr. Bemis?

12 PROGRAM SPECIALIST III BEMIS: Yes.

13 COMMISSIONER BYRON: I'm going to just take you
14 back for a second, if I may, and just ask you again to
15 clarify for me and for others why indeed we do see changes
16 from last year's projections to this year's projections.
17 You can just stay right there on that one. And I think
18 you'd indicated that there were some changes in the BTU
19 or -- yeah, natural gas usage in some of these different
20 sectors.

21 Is that primarily it? Or is there something --
22 is there other technology improvements and measurements?
23 Is there any other factors that are affecting this?

24 PROGRAM SPECIALIST III BEMIS: Yes. There are
25 probably at least three factors.

1 One is the reestimation of the activity level,
2 which is generally the fuel use. Another is -- in looking
3 back at -- and basically right now I'm trying to summarize
4 what I've put in my Appendix D -- for details, read
5 Appendix D?

6 One is change in activity levels by fuel type,
7 fuel use.

8 A second would be that -- in some instances I
9 found some double counting in the previous inventory.
10 Stone, clay, glass, et cetera, in particular, was a
11 subtotal and I thought it was actually not. And so I
12 double counted that one little fraction. That's only
13 worth a couple of tons -- a couple of million tons, but --
14 and what else?

15 There weren't really any changes in any emission
16 factors themselves. It was mostly activity data and that
17 error.

18 Frankly, there weren't -- the changes aren't that
19 dramatic, I don't think. But the details are. And if
20 that's the --

21 MS. BROWN: Gerry, I'm going to ask you to take
22 even a further step back and describe in general terms for
23 the audience and for us the methodology and approach that
24 you used in computing the statewide inventory, the key
25 data sources, and things of that ilk. I'm sure -- I know

1 a lot of this is documented in the staff report that's on
2 our website. But it would be helpful I think to put a
3 context on this.

4 PROGRAM SPECIALIST III BEMIS: Sure. I actually
5 skimmed over that probably too fast.

6 Basically what -- for most of the inventory --
7 and in the pie chart where I showed the 80 percent was
8 from fossil fuel -- I've talked about this -- 80 percent
9 of the emissions inventory is fossil fuel combustion. And
10 that portion of the inventory was developed using the
11 energy balance developed by our public interest research
12 and development people and updated this last summer
13 from -- I had just computed the emissions using
14 standardized emission factors. But I obtained from the
15 U.S. EPA about how much carbon is in a BTU of gasoline
16 versus coal versus petroleum coke versus whatever --
17 natural gas. And those are pretty standard. And you had
18 to make a little bit of an assumption about coal because
19 it varies quite a bit. But natural gas is 31.9. Then you
20 convert that to carbon dioxide by the weight ratio. And
21 you convert that to metric tons, et cetera. They're all
22 standard constants.

23 For the other portions of the inventory, I
24 collected and updated -- maybe I should say this too. I
25 didn't really do anything all that new. I updated the

1 inventory that was done previously starting in 19 -- 2002
2 by the ICF Corporation where they covered the 1990 to 1999
3 time period. And I updated that by extending the work out
4 to the later years. There were some times where I
5 replaced what they had with newer information I obtained
6 from the Air Resources Board. In one particular case that
7 I can mention as an example would be landfill emissions,
8 where I used data from the Air Resources Board. And when
9 I did that I went back to 1990 and carried that forward
10 from there. And so you'll see a fairly large difference.

11 If you look back to the 1999 inventory, you can
12 see a relatively large difference compared to what we have
13 now in the inventory.

14 So I got data from the agricultural activities
15 from the appropriate state agencies and extended what was
16 done by staff and by the ICF consultants with that.

17 Does that give you a little bit better --

18 MS. BROWN: Yes, I think so.

19 I guess I would also ask: Is it safe to say that
20 you're using standard reporting protocols that exist and
21 that others use in developing this statewide inventory?

22 PROGRAM SPECIALIST III BEMIS: Yeah, I used
23 overall guidance from the U.S. EPA, which in and of itself
24 refers back to the intergovernmental panel on climate
25 change as setting overall protocols for how to collect

1 information and -- that overall guidance. But I really
2 relied upon data from the U.S. EPA.

3 MS. BROWN: Then I guess another question I had
4 would be: Can you explain the usefulness of a top-down
5 inventory as compared to a facility-specific or
6 entity-specific inventory that my understanding the Air
7 Board will be developing as part of its responsibilities
8 under AB 32?

9 PROGRAM SPECIALIST III BEMIS: Yeah, I'd be glad
10 to.

11 Yeah, basically there have been procedures put in
12 place over the years to collect fuel-use data. And so
13 various entities -- or entities are required to report
14 their fuel use to various entities. And it gets assembled
15 by the U.S.B.O.E. under the Energy Information
16 Administration.

17 And so when you do that, you're aggregating fuel
18 use. You're basically breaking the connection between the
19 fuel use and the fuel user. But you have aggregated data
20 that would -- that can be used, and I did use in those
21 previous charts, to look at overall trends for emissions,
22 after make the calculations of course. And that's what I
23 call a top-down inventory. And the strength of the
24 top-down inventory is it's fairly comprehensive. And the
25 weakness of a top-down inventory is you break the link

1 between the emissions and the emitter.

2 So to have a connection between the emissions and
3 the emitter, you need a bottoms-up inventory, where you go
4 to a facility level and prepare inventory. An example of
5 that is the work done by the air pollution control
6 districts and the Air Resources Board when they're
7 generating emissions inventory for criteria pollutants.
8 And also the California Register for Greenhouse Gases,
9 they look at facility levels and company level emissions
10 also.

11 Those are different kinds of inventory. Those
12 are more bottoms-up inventory. This is a more a top-down
13 inventory. And, again, the top-down inventory is good for
14 looking at trends, maybe for establishing goals. And a
15 bottoms-up inventory is needed if you're going to be
16 taking any police and enforcement action to require people
17 to meet emission reductions, continue to accomplish those
18 goals.

19 MS. BROWN: Thank you.

20 One other question. And my understanding is that
21 California utilities are already reporting fuel-use data
22 to the U.S. Environmental Protection Agency; is that
23 correct? And we use that same information in compiling
24 our inventory data?

25 PROGRAM SPECIALIST III BEMIS: For the in-state

1 that's correct. But when you've got a situation where
2 you've got a facility that may be supplying electrons to a
3 variety of end users, some of which may be within the
4 state, some may not be within the state, if you want to
5 ascribe and track down and associate the emissions back
6 with the end user of the electricity, then you've got a
7 problem. And that's really the problem that Al Alvarado
8 will address in his presentation. And so that's a special
9 case, let's say.

10 MS. BROWN: And then I guess my last question was
11 going to be: Why do we need a different inventory for
12 calculating out-of-state emissions? And will that be the
13 subject of Mr. Alvarado's presentation, or can you briefly
14 address that?

15 PROGRAM SPECIALIST III BEMIS: Sure. I just said
16 it. That is, we don't track -- we don't tag the electrons
17 coming in across the state lines. We don't know where
18 they came from. We just know they're coming across the
19 state boundary. And we don't know whether that electron
20 was generated by hydroelectricity or coal, with of course
21 much different carbon entities.

22 So we have a problem with that. And Al is
23 charged with the responsibility of coming up with an
24 improvement methodology over what was used previously to
25 estimate -- and I can't emphasize the word "estimate"

1 strongly enough -- estimate emissions associated with
2 those electrons coming across border and report them in
3 the emissions inventory below the inventory for
4 information purposes as an adjunct piece of information,
5 just like I do the international fuels. Protocol says you
6 can remove the international fuels if you can make an
7 estimate of them. And in the 1990 to 1999 inventory done
8 by ICF, they did that for -- they made a shot at marine
9 bunkers only.

10 International fuels are marine and aviation. In
11 the last two inventories, we made an estimate for both
12 components, marine and aviation.

13 So the international fuels that are in the last
14 two reports are larger than the values in the previous
15 report, the IC -- what I call the ICF report. Those
16 are -- but those are reported in a box below the inventory
17 for information purposes. Policymakers can decide what to
18 do with those emissions. But they're not part of the
19 state inventory, because the state inventory's drawn
20 around the border.

21 And a specific example is -- and difficulty is
22 with the out-of-state coal plants that are under the
23 dispatch of the ISO -- the California ISO. Our
24 electricity office folks, represented here by Al, say
25 because they're dispatched by the California ISO, they're

1 part of the California system even though they're
2 physically located out of state. So that has to be dealt
3 with separately. And Al will probably talk about that in
4 more detail.

5 COMMISSIONER BYRON: So before you continue, you
6 were about to get into I think your 10 o'clock item,
7 right, on the agenda before I interrupted you on the
8 climate action team; is that correct?

9 PROGRAM SPECIALIST III BEMIS: Yes.

10 COMMISSIONER BYRON: So since you're on a roll,
11 let's continue down this line a little bit further.

12 I have a couple of questions, but I'd like to
13 also open it up. There's a great deal of interest here
14 today. If anyone else has some questions at this point
15 for Mr. Bemis, we'll take the time now and go ahead. And
16 please come up to the podium and just identify yourself
17 and ask away. I hope, Gerry, you're okay with this. But
18 since we have some time -- we're always in a rush -- let's
19 take a little bit of time and make sure we answer other
20 questions here.

21 PROGRAM SPECIALIST III BEMIS: Okay.

22 MR. BEEBE: I'm Bud Beebe with the Sacramento
23 Municipal Utility District.

24 COMMISSIONER BYRON: Is your green light on, Mr.
25 Beebe?

1 MR. BEEBE: Yes -- oh, my green light is now on.

2 COMMISSIONER BYRON: Good.

3 MR. BEEBE: The recorder and the others in the
4 room can now hear me.

5 Gerry, for the record could you just describe a
6 little bit how you treated cogeneration and which bin you
7 decided to put the different greenhouse gas in,
8 particularly for those instances where we have electricity
9 and process heat being generated, say, in a refinery or at
10 a food processing plant. Did those greenhouse gases
11 emissions tend to -- for cogeneration that were within a
12 typically non-utility setting but which produced
13 electricity for the grid in any case, did they fall more
14 into the electricity sector or more into the industrial
15 sector?

16 PROGRAM SPECIALIST III BEMIS: You asked for it.

17 Now, maybe fire up my --

18 MR. BEEBE: I know you love this.

19 PROGRAM SPECIALIST III BEMIS: I do -- well, I
20 have a hard time answering questions out of my head,
21 because there's so much detail here that I really try not
22 to. Basically -- I don't know if anybody can see this or
23 not. But this is the electricity portion -- in-state
24 electricity portion of the inventory. And for those of
25 you who can't read it, I'll read it for you.

1 In-state emissions are broken down into natural
2 gas and coal. Yes, there is a little bit of coal
3 in-state. And we've got commercial combined heat and
4 power, electric combined heat and power, industrial
5 combined heat and power, utility-owned power, merchant
6 power, refineries self-gen, and a little bit of other
7 maybe.

8 And so these fuel uses for natural gas -- and you
9 can see some for coal -- were developed or estimated by
10 our contractor. And I use the data to estimate emissions.
11 These are the emissions results. There is also some up
12 here under industrial -- industrial, natural gas, mining,
13 manufacturing, blah, blah, blah, blah, blah. Oh, I
14 can't tell.

15 MR. BEEBE: There it is. Line 96 or something,
16 electric --

17 PROGRAM SPECIALIST III BEMIS: Electric --
18 electronic equipment -- no, that's not.

19 But, anyway, some of the --

20 MR. BEEBE: So really what I was getting at here
21 is --

22 PROGRAM SPECIALIST III BEMIS: Some are -- the
23 thermal portion?

24 MR. BEEBE: -- is that there is often overlap
25 within the industrial sector for people who produce both

1 electricity and process heat.

2 PROGRAM SPECIALIST III BEMIS: Right.

3 MR. BEEBE: And this is difficult to
4 disaggregate.

5 PROGRAM SPECIALIST III BEMIS: Yeah.

6 MR. BEEBE: And I guess what I'd like to know, as
7 your database is carried over to the ARB and where they
8 will likely disaggregate it to perhaps make goals and
9 things, what's your confidence that they will have
10 sufficient granularity and sufficient information to
11 really understand whether it's an industrial source of CO2
12 or an electricity sector of the --

13 PROGRAM SPECIALIST III BEMIS: I think what
14 you're saying is to a certain extent these labels are
15 arbitrary. And the more boundary you draw, whether it's a
16 geographical boundary or a sector-type boundary, the more
17 chances you have for distortions. I think what the
18 typical practice is is to say, okay, if they didn't have
19 the cogeneration facility, they would have had to use a
20 fuel for the process heat. So we're going to assume a
21 nominal efficiency of that boiler to -- what is it? -- 80
22 percent, and then we will calculate what the fuel use
23 would have been had they had an 80 percent efficient
24 boiler. We're going to arbitrarily or semi-arbitrarily
25 assign that portion of the fuel use to the industrial side

1 and the remainder to the electricity side. That's what
2 typically is done -- what I presume is done here.

3 MR. BEEBE: So you have to presume that that was
4 done. But you see that -- there are numbers that
5 presumably represent that in these charts that ARB or
6 others who use this data could disaggregate and make some
7 decisions about who owns which piece of a that came off of
8 this industrial facility.

9 PROGRAM SPECIALIST III BEMIS: I think there is a
10 need to do that. And I think if you -- now I'm thinking
11 about our other activities where we're looking at
12 emissions limits on power plants, which is probably what's
13 in the back of your mind.

14 MR. BEEBE: Yes.

15 PROGRAM SPECIALIST III BEMIS: And that's --

16 MR. BEEBE: In the front of my mind actually.

17 (Laughter.)

18 PROGRAM SPECIALIST III BEMIS: Well, okay. That
19 certainly is a topic for discussion in that arena, and
20 that we are, in fact -- the Energy Commission, which will
21 be responsible for the municipal -- the publicly owned
22 utilities, including SMUD, has that as the topic -- it's
23 an important topic there. So we will be looking at that.

24 MR. BEEBE: Well, thank you for your information
25 on that. Thank you.

1 COMMISSIONER BYRON: If there's another question,
2 go right ahead.

3 MR. McLAUGHLIN: Bruce McLaughlin, California
4 Municipal Utility Association. Two quick questions.

5 Now, you mentioned this is a top-down database.
6 And of course CARB is going to be looking from the
7 bottom-up into the specifics.

8 So I guess my concern -- and I think Bud sort of
9 hit on it a little bit -- this is a very, I'll use the
10 word, gross analysis of inventory. But it's not something
11 that you could give to CARB and CARB would say, "Okay,
12 great. Here it is." They have considerable work to do
13 even with this inventory in their hands, correct?

14 PROGRAM SPECIALIST III BEMIS: I think that's
15 probably true. You could certainly address that question
16 to them. They'll be speaking later today. But I've met
17 with them and I think -- I counted probably 14 to 16
18 people that are assigned to this project. So I'm one --
19 less than one. So they are --

20 COMMISSIONER BYRON: They have a great deal of
21 work to do. We're very concerned about the level of
22 effort they've got to put into this.

23 MR. McLAUGHLIN: Okay. And one more question
24 then. On the other gases, you talked about your
25 computation of CO2. But then in your diagram there -- or

1 your exploded pie chart you had methane, et cetera, et
2 cetera.

3 What sort of -- how accurate were those
4 measurements? And if you had a power plant and you knew,
5 for instance, the fuel load it was using, would you be
6 able to figure out according to your calculations how much
7 methane was coming out of that power plant?

8 PROGRAM SPECIALIST III BEMIS: I think the answer
9 to that is yes. The question might be: Where do you draw
10 the boundary? Do you draw the boundary of the facility --
11 a part of the methane emissions are stack emissions and
12 part of the methane emissions are fuel supply leaking
13 emissions -- leaking methane -- et cetera. How far
14 upstream do you chase that and decide that's the
15 responsibility of that power plant? I think that boundary
16 issue is an issue there.

17 And there's also sometimes SF-6 from a
18 transformer -- or a switchyard gear as insulated gear, the
19 metal switchyard gear, and transmitting electricity also.
20 How do you assign those responsibilities?

21 MR. McLAUGHLIN: So you feel that -- do you feel
22 you have a better handle on the CO2 emissions as opposed
23 to the other greenhouse gases?

24 PROGRAM SPECIALIST III BEMIS: Yes. But not in
25 maybe ways that you might expect. Like, for example, the

1 SF-6. The SF-6 is scaled from the national inventory
2 based upon energy consumption in the State of California,
3 which includes of course input of electricity for around a
4 quarter to a third of our electrons.

5 But our practice in California, at least in the
6 more recent years, might be different than the national
7 average, either -- for example, there was a special
8 project done by the Electric Power Institute with PG&E
9 where they were able to find that if they isolated their
10 expenses associated with SF-6 handling, they could
11 actually save money and reduce emissions by altering their
12 practices. And they've done that. So PG&E, for example,
13 might not mirror the national average which was used to
14 scale greenhouse gas emissions. So there may be some
15 reasons why there may be differences that might not be
16 what you'd normally expect.

17 For the first I think it's three years at the
18 California registry they have to report the carbon dioxide
19 gases. After that they have to report their other gases
20 too.

21 MR. McLAUGHLIN: Thanks a lot.

22 PROGRAM SPECIALIST III BEMIS: Sure.

23 Morning.

24 MR. GRATTAN: Good morning. John Grattan from
25 Grattan Law and Governmental Relations.

1 Could you tell us -- and I think I know the
2 answer. But could you tell us how you handle biomass
3 combustion for electric generation? And did you
4 distinguish between the source of biomass whether it's
5 going to end up in a sink or, you know, whether it would
6 be otherwise combustible?

7 PROGRAM SPECIALIST III BEMIS: Yes, yes, and yes.

8 (Laughter.)

9 PROGRAM SPECIALIST III BEMIS: Basically for
10 carbon -- for carbon, if the fuel -- basically for wood
11 waste, for example, that was used to make electricity, we
12 ignore the carbon. Figure it has to be carbon neutral.
13 For N2O, methane, or anything that's associated like that,
14 they're included. There is a component of inventory for
15 landfilling yard wastes and trimmings and things that are
16 basically sequestered, if you will, in a landfill. And
17 there's a carbon sink for that.

18 I don't know if I've really answered your
19 question or not, John.

20 MR. GRATTAN: I think you did. Thanks.

21 MR. BRINK: Steve Brink, California Forestry
22 Association, in follow-up to that.

23 So the source -- or I shouldn't say source -- the
24 criteria pollutants are accounted for in biomass
25 electricity generation in a manner that we can see the

1 potential offset in other fossil fuels?

2 PROGRAM SPECIALIST III BEMIS: We made estimates
3 for methane and N2O. I wouldn't use the word "criteria
4 pollutants" necessarily because I don't think N2O, for
5 example, they're a criteria pollutant. But we made
6 estimates for N2O and for methane.

7 MR. BRINK: Okay. Another question.

8 I'm a little concerned. I came prepared today to
9 respond to CEC's October, 2006, 1990 to 2004 inventory.
10 And you've been flashing slides about 2005 and 2006.

11 PROGRAM SPECIALIST III BEMIS: The 2006 inventory
12 is the one we published and that you're referring to now.
13 And I'm trying to -- and I did show some slides showing
14 trends and showing the emissions and pie charts and stuff
15 like that.

16 And then I thought it would be appropriate to
17 compare it to last year's inventory, which I'm calling
18 here the 2005 inventory, and compare it to the inventory
19 used by the CAT team, which is coming up next.

20 MR. BRINK: Can you predict when the inventory
21 of -- the 1990 to 2004 would be expanded to include '05
22 and '06?

23 PROGRAM SPECIALIST III BEMIS: That will be a
24 responsibility of the Air Resources Board, because January
25 1st it goes over to them.

1 MR. BRINK: Okay.

2 COMMISSIONER BYRON: Go right ahead.

3 MR. NORDHEM: Good morning. I'm Mark Nordhem.

4 I'm with Chevron and also Western States Petroleum
5 Association.

6 And on one of your earlier slides you showed
7 projections out to 2008 that had dots for the Governor's
8 goals, et cetera?

9 PROGRAM SPECIALIST III BEMIS: Yeah.

10 MR. NORDHEM: Can you share with us how that
11 projection was done? Did you just extrapolate -- did you
12 just project off the historic slope or did you know
13 something about activity data on into the future?

14 PROGRAM SPECIALIST III BEMIS: I did it in a
15 variety of ways, and I would refer you to Appendix F for
16 the details.

17 But in summary, I used our 2005 IEPR, Integrated
18 Energy Policy Report, demand forecasts -- excuse me -- and
19 fueled in that forecasts for gasoline, diesel, jet,
20 electricity. And where there was supporting data for
21 other components of the inventory that I found, I used
22 that also.

23 As an example, it turns out in order to forecast
24 the demand for electricity in the animal husbandry sector,
25 we have to project head of cattle. Okay. If we have head

1 of cattle projections, I can project entire fermentation
2 from that. So I did that. In a few instances I looked at
3 the preceding years' trends and extrapolated them. And in
4 some instances where I didn't have any good information, I
5 held a constant. But those are really the minor sources
6 of the inventory.

7 The major sources of the inventory are projected,
8 using the 2005 IEPR. And I do have some slides coming up
9 where I compared the current projections, as you saw in
10 that one diagram, with projections made earlier for the
11 cow wherein more things were held constant because we
12 didn't know about the head of cattle. And so the growth
13 is slightly larger now compared to the previous work.

14 MR. NORDHEM: Okay. And I have just one sort of
15 general observation. When you were running through your
16 comparison of -- we had this nomenclature thing, '05-'06.

17 PROGRAM SPECIALIST III BEMIS: Yeah. Previous
18 report.

19 MR. NORDHEM: Between the previous report and the
20 current report, when you got all through you made a
21 comment that you were surprised and sort of -- the chart's
22 total numbers were pretty similar?

23 PROGRAM SPECIALIST III BEMIS: This chart right
24 here.

25 MR. NORDHEM: But as we move -- this comment

1 is -- this an observational comment, not just to you but
2 the ARB folks -- that that may be true with the totals,
3 but sector numbers I think the residential was a 15
4 percent swing. And when you look at moving into a
5 regulatory regime, those are significant I think. And so
6 as we go through this activity I think those of us who
7 ultimately are going to either be regulated or volunteered
8 or however it ends up being ultimately implemented, those
9 I think are the kinds of things that we need to work
10 together to kind of grind out this exercise. Otherwise,
11 every other year people are going to be in different
12 squares.

13 PROGRAM SPECIALIST III BEMIS: I think they need
14 to establish some starting point. And I think that's
15 going to be an important role for them to take as soon as
16 they can get started on it.

17 But this is probably a way summarizing what you
18 just said. If you look at the purple line, the first
19 comparison is really pretty close except maybe in 2002.
20 Some differences in the commercial sector, maybe some in
21 the industrial sector. And some of that could be changes
22 in assigning emissions from electricity versus commercial,
23 maybe. I don't know. But they go in different
24 directions. And then overall -- one is shown in the next
25 slide. And I think -- or maybe -- I was surprised at

1 how -- maybe they balance out. I don't know.

2 But I think your point's well taken. It's going
3 to be really important to come up with a good base line
4 and to live with it.

5 I'm going to show at the end a graph showing that
6 recalculations, as they're called, are not all that
7 unusual and they're done all the time. Federal
8 recalculations in some cases are what cause changes in the
9 California inventory where I had to prorate the national
10 data to California, an example being SF-6.

11 COMMISSIONER BYRON: Chuck.

12 Please introduce yourself.

13 MR. WHITE: Good morning. I'm Chuck White with
14 Waste Management. And I guess my first comment is: Is
15 there any way that we can clone Gerry so when the effort
16 transfers over to the Air Resources Board, that he can
17 maintain some involvement?

18 COMMISSIONER BYRON: Allow me to answer that
19 question. They cannot have Gerry. They can have his
20 expertise and his help, but we want Gerry.

21 MR. WHITE: All I can say is I didn't know Gerry
22 about a year ago; but in the last year since landfills
23 were identified as a potential significant source of
24 greenhouse gas emissions, my interest and the interest of
25 our industry has really peaked up a bit.

1 And I guess my real question, Gerry, to you is
2 that -- as I mentioned, the landfills were mentioned as a
3 significant source as a large part of the CCAT study that
4 was based upon the Tellus Institute, which caught many of
5 us by surprise because looking at your inventories in the
6 past and even more so in your current inventories, they
7 show that landfill methane emissions are much, much lower
8 than was indicated by the Tellus Institute; and then there
9 was other slight omission from the Tellus Institute and
10 the California Climate Action Team and, that is, the
11 sequestration of carbon in landfills.

12 And there's still a lot more work, and Gerry
13 acknowledged that in the most recent report, that needs to
14 be done. In fact, the Energy Commission is to be
15 commended for the leadership they're showing on looking
16 further at fugitive emissions. And our industry hopes to
17 work closely with you as you develop better information.

18 But the basis of the methane emissions from
19 landfills is based on Air Resources Board inventories of
20 organic gases. And we're not clear on all the different
21 procedures that the individual air districts use to come
22 up with those. There hasn't been a real good evaluation
23 of the protocols that each of the districts used. In
24 fact, on the Air Resources Board website there's only two
25 districts that actually explain what their protocols are

1 with respect to reactive organic gases.

2 When we look at the overall waste mass in place
3 of landfills in California -- and we do our own
4 computations based upon protocols that are widely
5 accepted -- we even find lower emission limits than even
6 what Gerry's latest numbers show, which are much, much
7 below that of the CCAT and the Tellus report.

8 So I guess I'd be asking your advice as we
9 proceed and pass the baton over to the Air Resources
10 Board: What kind of message can you give to them with
11 respect to the most recent information and future work to
12 be done on landfill gas emissions and then the value of
13 and the merit of considering sequestration of carbon in
14 landfills that can be used in part to perhaps offset what
15 emissions do occur from landfills?

16 Thank you.

17 PROGRAM SPECIALIST III BEMIS: A long question.

18 Thank you for the compliment, by the way, both of
19 you.

20 MR. WHITE: I mean I hope you can be around in
21 some capacity, continue with the work.

22 PROGRAM SPECIALIST III BEMIS: I hopefully will
23 be around too.

24 (Laughter.)

25 PROGRAM SPECIALIST III BEMIS: To answer your

1 question though, the 1990 to 1999 inventory, which was
2 done under PIER Program funding for the Energy Commission
3 by ICF, Inc., ICF did that work pretty quickly, in a few
4 months' time. They are the ones who did the national
5 inventory, with the U.S. EPA and their experts. Where
6 they didn't have California specific data, they used the
7 national average data. And I suspect this is the case
8 with landfills, that they had to use national data. And I
9 suspect also that California has been more aggressive in
10 implementing controls on landfill to energy projects, et
11 cetera, to reduce methane emissions from landfills, which
12 is what we're specifically talking about.

13 The numbers that I came up with based upon data
14 collected by the Air Resources Board from the local
15 districts was on the order of half of what they had in
16 1990, 16 versus 8 roughly, and pretty constant through
17 2004. The number actually went down a little bit from
18 last year's inventory to this year's inventory.

19 But there's a lot uncertainty in the emission
20 factors, the emission rates. And we have some good work
21 going on by the PIER Program to look at landfills
22 specifically in more detail and come up with
23 California-specific emission factors. One of these -- an
24 example I can give you that shows a degree of
25 approximation required to do that is: They assume is

1 California rainy or not rainy? Is it wet or dry? Well,
2 California is a big state and we have a lot different
3 micro-climate zones. We really can't use one number for
4 the whole state. One could go back and look at each
5 landfill or the major landfills and apply the EPA
6 methodology for each landfill separately and aggregate
7 emissions. I haven't done that. But I relied upon data
8 from the Air Resources Board.

9 That's an example of how one has to make
10 approximations when you're doing inventory quickly.

11 We started with the ICF inventory from 1990 to
12 '99. Then last year we extended that out to the year
13 2002. And this year I extended out to 2004, which is the
14 latest year we have information available.

15 Your question about the yard trimmings, et
16 cetera, that was done by last year in the inventory and is
17 identified in the ICF inventory also. I think it's just
18 when the people were looking at how they chose to
19 aggregate or look at emissions, they didn't look at carbon
20 component. They listed the methane component. Methane
21 emissions in that pie chart are on the order of 6 or so
22 percent of the total inventory. They're not a major
23 category. With the new PIER research, that could change.

24 MR. WHITE: Yeah, I think -- just one follow-up
25 comment. It's easy to not make the linkage, because early

1 on in your inventory you show the methane emissions and
2 then way down at the end you show the sequestration that
3 occurs from yard trimmings and wood waste. In fact,
4 there's other linking and bearing waste other than those
5 two that may actually change that number.

6 But how can we somehow in future inventories make
7 that link so landfills, both their emissions and their
8 sequestration, can be considered together so as to take a
9 look at the total overall impact of landfills and not have
10 some very high number that is really unrelated to the
11 overall net impact of that activity?

12 PROGRAM SPECIALIST III BEMIS: Well, I guess I
13 would not quite agree with your characterization. I show
14 here carbon dioxide emissions, first of all gross
15 emissions, and then down here land-use and forest --
16 changes in red. Those are the sinks. And it's forest,
17 range lands, soils, and then landfills down at the bottom
18 there.

19 And so I in fact do show it up in the carbon
20 dioxide portion of the inventories, because this is carbon
21 dioxide, and down below that is the methane portion.

22 And if you look and see the landfills here, at
23 least in 1990, is around 8 1/2 and it's the same order of
24 magnitude as the emissions of methane.

25 There's also -- another problem is there's also

1 emissions associated with transporting waste to the
2 landfills. And the fuel used to transport those wastes
3 are aggregated into on-road diesel, for example, and it's
4 shown there. So it's not really all of the landfill
5 operations, if you will.

6 COMMISSIONER BYRON: If this could be our
7 last -- let's take the one on the floor first, if that's
8 all right. Then we'll do the phone. And then hopefully
9 that will get us back on schedule.

10 Please introduce yourself.

11 MR. JOHN: My name is Ivor John. I'm with
12 Ryerson, Master & Associates.

13 My question, Gerry, concerns the transportation
14 sector and carbon dioxide emissions. You mentioned that
15 from 1990 to 2004, the emissions have increased by about
16 17 percent. And I've been following the inventories for a
17 number of years. And the ICF inventory which you picked
18 up in 1999 showed a fairly flat level of emissions CO2 for
19 transportation from 1990 to 1999.

20 Now, one thing I haven't seen in the updates is
21 an explanation of why your numbers are different from
22 ICF's, because I think going back to the year 1990 there's
23 a very important implication here, as we said, base-wise.
24 Knowing the trends in transportation in California, I
25 believe your numbers -- I think transportation emissions

1 probably have gone up. But I think it's worthy of an
2 explanation as to why ICF's numbers were flat. I know
3 you've taken out the bunker emissions. But I would expect
4 that they haven't been decreasing over those nine years.
5 They probably were increasing as well. So I think that
6 warrants a little bit more examination.

7 So I don't expect you to answer that today. But
8 it might be worth exploring in further updates.

9 PROGRAM SPECIALIST III BEMIS: Well, I intend to
10 try to answer it.

11 The gasoline, for example, use -- let's go to
12 this page -- gasoline use has increased. That's what this
13 page here shows. The yellow portion is gasoline, and the
14 purplish portion is N2O through gasoline combustion. And
15 I said that the gasoline portion increased 17 1/2 percent.
16 But the overall gasoline emissions have only increased
17 about 12 1/2 percent. And you can see if you draw the
18 line about here, around 1999, they are relatively flat.
19 They're just starting to take off in about 1997, and it's
20 because we're using more gasoline. And up in this time
21 period we were driving more SUVs.

22 MR. JOHN: I'll follow up with you after the
23 meeting, Gerry.

24 PROGRAM SPECIALIST III BEMIS: Okay.

25 COMMISSIONER BYRON: Just before we go to the

1 phone question, an adder to this, if I may.

2 I understand that there's about 67,000 sleeper
3 cab -- heavy trucks -- heavy-duty trucks on the road, many
4 of which go in and out of state, Gerry. You know,
5 anecdotally a lot of those folks apparently fill up with
6 their fuel because out-of-state fuel is cheaper. So
7 that's probably not accounted for here. And my question
8 is hopefully a simple one. How significant do you think
9 that is?

10 PROGRAM SPECIALIST III BEMIS: First of all, I
11 agree they're not accounted for, because we only include
12 fuel that's sold within the state. So some of the --

13 COMMISSIONER BYRON: Since we have airplane and
14 trains and long-haul too.

15 PROGRAM SPECIALIST III BEMIS: And long-haul
16 trucks, yes. So those who fuel out of state, come into
17 the state and leave the state without refueling, we don't
18 catch that.

19 COMMISSIONER BYRON: Okay. How significant?

20 PROGRAM SPECIALIST III BEMIS: You know, the
21 numbers we have for international fuel use was -- aviation
22 fuel use was larger than I would have expected. Around a
23 third of the jet fuel use was international. And so it
24 was a bigger fraction than I would have expected. I would
25 think that the international trucking, for example, is a

1 small fraction. I think there -- I don't think it's a
2 huge fraction personally. I could be wrong. I don't
3 know. But that's in the jet -- on-road diesel category,
4 and that's not a huge component of the inventory.

5 COMMISSIONER BYRON: We'll add that one to the
6 list of issues for our friends at the ARB to solve.

7 PROGRAM SPECIALIST III BEMIS: Fair enough.

8 COMMISSIONER BYRON: I'm sorry. There was a
9 question on the phone.

10 Please go ahead and introduce yourself.

11 MR. COLEMAN: Yes, thank you. My name is Bill
12 Coleman. I'm with Planktos, Inc., located in Foster City
13 on the San Francisco peninsula.

14 Our company is dedicated to carbon capture and
15 sequestration. And so the sinks portion of this report
16 has been of particular interest to us. I was hopeful that
17 we could see a little more of the visual representation of
18 sinks opportunities here in California, wondering if --
19 and I had seen some of the data on the spread sheets that
20 were being presented, but nothing in the PowerPoint
21 presentation itself. I was wondering if you could just
22 give us a couple of insights into opportunities for sinks
23 here in the state.

24 PROGRAM SPECIALIST III BEMIS: Personally cannot.
25 I do know that we've got some additional work underway in

1 our PIER Program, our public interest R&D program, looking
2 as sequestering carbon emissions. And I do know that
3 there are two types. Sometimes there are geologic
4 sequestering and what I would call surface sequestering in
5 the form of uptake on the plants. And I think the trends
6 here, my inventories show that over time as numbers go
7 down, that there's less sequestering over time for some of
8 the components at least.

9 I don't really know what the nature of your
10 interest is, or questions, but I would actually encourage
11 you to talk to our PIER Program folks. Guido Franco
12 specifically probably could be a contact for you.

13 MR. COLEMAN: Very good. We'll do that then.

14 Thank you.

15 COMMISSIONER BYRON: I apologize with regard to
16 maybe getting us behind schedule, Gerry. But I think it's
17 very helpful for folks to get to ask you questions about
18 all this information.

19 Let's go ahead and proceed with the Climate
20 Action Team part of the presentation.

21 PROGRAM SPECIALIST III BEMIS: No, I would
22 actually thank you for slowing me down.

23 COMMISSIONER BYRON: Okay.

24 PROGRAM SPECIALIST III BEMIS: And Susan's help
25 to set the context better than I had.

1 COMMISSIONER BYRON: All right.

2 (Thereupon an overhead presentation was
3 Presented as follows.)

4 PROGRAM SPECIALIST III BEMIS: Okay. This is
5 where I was.

6 COMMISSIONER BYRON: Is the magenta the color
7 you're looking for?

8 PROGRAM SPECIALIST III BEMIS: I don't know.
9 This is where I was. This is was the total inventory from
10 the one we published in 2005 compared to the one we're
11 publishing this year, by December of this year. And
12 that's a hard date because inventory transferred over to
13 ARB.

14 --o0o--

15 PROGRAM SPECIALIST III BEMIS: Okay. The next
16 set of slides will compare the 2006 inventory to the
17 Climate Action Team inventory, what I call here the "CAT
18 Inventory" for short.

19 And here the emissions are aggregated in a little
20 bit different way than the previous inventory, because
21 they have direct fuel use, et cetera. So it's a little
22 bit more aggregated. The numbers are bigger on the
23 access. Instead of being 20, it's 140 in this example.

24 The CAT numbers were based upon the 1990 to 1999
25 inventory prepared by ICF under the PIER Program funding.

1 Here I'm showing the inventory of 1990 to 2000,
2 because those are the critical target years, plus
3 projections to 2010 and 2020. So this a little bit
4 different than the previous set of slides.

5 The projections done for 2010 and 2020 I alluded
6 to earlier were based upon the 2003 Integrated Energy
7 Policy Report, 2003 IEPR. And where we didn't have data
8 we held the emissions constant at their 2002 level. What
9 happened was an inventory was prepared for 1990 to 1999;
10 it was extended to 2002 by Tellus Institute and then was
11 projected to 2010 and 2020 from the 2002 number.

12 On the other hand, the 2006 inventory is based
13 upon the current inventory plus 2005 IEPR projections.

14 This one shows transportation. Okay.

15 --o0o--

16 PROGRAM SPECIALIST III BEMIS: Here I've got to
17 point out there's a problem with the international fuels.
18 The CAT inventory just identified marine international
19 fuels, and my inventory identifies aviation and marine
20 international fuels. So my international bunkers are
21 bigger and different.

22 If you add the international bunkers to this, the
23 numbers come out closer. That's part of the reason for
24 the differences here between those two sets.

25 --o0o--

1 PROGRAM SPECIALIST III BEMIS: Now, this is the
2 non-carbon greenhouse gas emissions portion of the
3 inventory. And here you can see we started at a little
4 bit higher point and we project at a higher rate. The
5 stippled green bars are going up faster than the soft
6 green bars. And this illustrates the fact that we have
7 more factors to use for the projections. And I gave you
8 an example of the entire fermentation where we found that
9 our demand forecasting folks have to forecast ahead of
10 cattle to estimate electricity being in that sector, and
11 so I used that. And that's just an example. There are
12 others I could use. But that's why these go up faster.

13 --o0o--

14 PROGRAM SPECIALIST III BEMIS: This is in-state
15 electricity. And our numbers are a little bit different.

16 Electricity is a difficult animal. The 1990 to
17 '99 inventory was done in a time when we were just in the
18 midst of an electricity deregulation. And a lot of times
19 back in those case they reported electricity sector
20 emissions in the industrial sector because they considered
21 that to be an industrial plant. Where, in fact, now we --
22 they relabeled the term. Instead of being electric
23 utility emission it's now electricity generation
24 regardless of ownership. So we have a better handle for
25 emissions from the electricity sector, I believe, now than

1 they did back in the 1990 to 1999 inventory.

2 They tried -- They made an estimate of trying to
3 back that out. But the basic -- the point is in the basic
4 inventory they showed electric utility power plant
5 emissions going down to almost nothing. That's because it
6 was a transfer from the electricity sector to industrial
7 sector. It was a label change. It wasn't really an
8 emission change. We corrected that, and that's why the
9 '06 inventory numbers are different and more orderly.

10 Questions?

11 COMMISSIONER BYRON: Questions?

12 Please come forward. Do you have a question?

13 Is that all right with you, Gerry?

14 PROGRAM SPECIALIST III BEMIS: As long as it's
15 okay with you.

16 COMMISSIONER BYRON: Okay.

17 MR. PRETTO: Mike Pretto, Silicon Valley Power,
18 City of Santa Clara.

19 I was just looking at your 1990 data. And if you
20 were taking -- seemed like -- why did the 2006 inventory
21 go down for 1990 if you were trying to adjust for electric
22 generation? Or am I missing something?

23 PROGRAM SPECIALIST III BEMIS: Why is the
24 stippled bar in 1990 lower than the red bar?

25 MR. PRETTO: Yes.

1 PROGRAM SPECIALIST III BEMIS: All the red bars
2 have an estimate of electricity emissions done during a
3 time when there was a lot of uncertainty over electricity
4 emissions. We were in the midst of deregulation. It was
5 19 -- it was the year 2000-2001. Utilities were telling
6 us they didn't have to report their marketing data because
7 of confidentiality issues. Maybe Al Alvarado can speak
8 towards that a little bit better. But that's what I was
9 trying to explain, that our data back in that time period
10 when that inventory was done was not as good as it is now.
11 We've got a better handle on -- people have gone back and
12 tried to sort out what is the proper emissions from
13 electricity generation rather than just electric utility
14 ownership?

15 Let me give you an example. Maybe that will
16 help.

17 If you own a facility, and back in the old days
18 you bought power from PG&E or somebody, and then you
19 decide that we could save money if you built your own
20 cogeneration plant, so you build your own cogeneration
21 plant. Now, instead of buying fuel for your process,
22 you're buying more fuel for your electricity and your
23 process. And I mentioned earlier about how you have to
24 kind of arbitrarily decide what percentage of the fuel use
25 to ascribe to the industrial side and how much is going to

1 be electricity generation. We talked about that an hour
2 ago.

3 But now, say, you're buying more fuel and you're
4 using some of that fuel to make electricity and some of it
5 to make process. Well, now you're no longer buying
6 electricity from PG&E. Is that an electricity use of the
7 fuel?

8 You have to kind of be arbitrary. We have to
9 make some decisions about how to slice and dice that fuel
10 use. And the typical practice, as I said, is to assume an
11 80 percent efficient boiler and ascribe that portion of
12 the fuel use to the industrial side and the remainder to
13 the electricity side. Some of those estimates have been
14 made, brought back into recalculating emission -- fuel
15 use -- excuse me -- from electricity generation now
16 instead of electric utility ownership. And that's why
17 these numbers are more regular in the stippled bars than
18 in the solid bars for each year.

19 Does that help?

20 MR. PRETTO: Yes.

21 PROGRAM SPECIALIST III BEMIS: Okay. There's a
22 lot of uncertainty. There's uncertainty in the early
23 years in what were electric utility -- electric generation
24 emissions -- excuse me -- I'm using the wrong term.
25 There's going to be uncertainty probably in the future.

1 And Al again will speak to that. And that's why we've got
2 Al on the agenda, to speak towards that issue. It is an
3 important one.

4 --o0o--

5 PROGRAM SPECIALIST III BEMIS: The imported
6 electricity. This is basically in the stippled bars again
7 the current inventory and the solid yellow bars in
8 previous inventories that go for imported electricity.
9 And that inventory -- and, again, my Appendix C describes
10 the differences between these two data sets. For the 1990
11 to 1999 inventory imports, that was based upon looking at
12 two years, 1994 and 1995, doing as best they could in
13 contract-to-contract associations, using annual averages
14 of fuel use from those companies, coming up with emission
15 factor, averaging those two years and applying that over
16 1990 to 1999. No matter which method you use to estimate
17 electricity imports, there's a series of assumptions that
18 can be made. And Al will go into that in much more detail
19 later.

20 But the last two inventories that I was
21 responsible for, I used the Energy Commission's adopted
22 split for the market portion of the imports. Not the
23 out-of-state coal plants that we all know is coal; but for
24 the market purchases where we don't really know what the
25 fuel source was, we have to make assumptions. The

1 assumptions that I made were that the Energy Commission's
2 adopted split between hydro and coal for the Pacific
3 Northwest, for example, was -- what was it, 70 percent
4 coal? -- 80 percent hydro? -- 80 percent hydro -- excuse
5 me -- and a different assumption for the southwest. But
6 then applying those percentages to the energy, making an
7 assumption on what the heat rate was, we calculate
8 emissions for that time period.

9 For the more recent years, I was able to use data
10 from which we -- even better assessment, better
11 guesstimate, if you will, of the market portions of the
12 imports. And Al's going to talk about that when it's his
13 turn.

14 --o0o--

15 PROGRAM SPECIALIST III BEMIS: Okay. Then the
16 two previous slides added together, and you can see that
17 they're similar, those with imports and in-state
18 electricity.

19 --o0o--

20 PROGRAM SPECIALIST III BEMIS: Okay. Taking all
21 those bar charts or stacking them up side by side on a
22 single same vertical axis, you can see here how the
23 emissions changed by category. And I don't have the
24 total. It's on the next page.

25 Oh. And then what I did differently on this one

1 was, in the dark blue lines for 2010 and 2020, I
2 included -- okay, if you calculate the decrease needed to
3 meet the target, as I explained before, by taking the year
4 2000 value and comparing it to the 2010 projections,
5 taking that difference, using each one of these sets of
6 data, how do those compare? And solid blue lines show
7 that even though there's variations from year to year and
8 from component to component, on an overall basis I was
9 pleased on how close the numbers were. And, again, I've
10 got an appendix, Appendix F, where I describe that in more
11 detail.

12 But, anyway, the dark blue lines are probably
13 what matters. How much reduction do we need to meet the
14 Governor's goal, especially out in 2020? AB 32 looks at
15 2020. It's doesn't even look at 2010 because it's too
16 soon. And from my perspective, those bars are really
17 quite close to one another. Given the uncertainties in
18 the data, I was pleased by that difference being as small
19 as it is.

20 --o0o--

21 MS. BROWN: Gerry maybe you could comment
22 briefly. The importance of the inventory that was used by
23 the Climate Action Team was to establish a base line
24 against which progress toward meeting the Governor's
25 greenhouse gas reduction goals could be measured, right?

1 And it's my understanding that under AB 32, the Air Board
2 will be taking this inventory and building upon it and
3 coming up with essentially a new base line for 1990 going
4 forward. Is that generally correct?

5 PROGRAM SPECIALIST III BEMIS: I think I would
6 refer your question to the Air Resources Board staff to
7 respond to. They will be coming up with either refining
8 this inventory or coming up with a new inventory. Maybe
9 they'll do it in a hybrid fashion where they might feel
10 that for certain categories they've got really pretty good
11 data but other categories they don't. And so it might
12 become a hybrid. I don't really know. That will be up to
13 them to determine.

14 COMMISSIONER BYRON: You know, I'm not a
15 greenhouse gas expert, but I do have technical background.
16 And I suspect that there will be some complexities
17 reconciling a bottoms-up and a tops-down approach no
18 matter what it is we're adding up. And I just want to
19 make sure Air Resources Board knows that we're available
20 and we will help you with that reconciliation.

21 PROGRAM SPECIALIST III BEMIS: Absolutely. I
22 absolutely agree with your statement, Mr. Byron.

23 --o0o--

24 PROGRAM SPECIALIST III BEMIS: Okay. Here's how
25 the totals compare. And, again, especially -- 2010, 2020,

1 I'm pretty happy that those emissions are so close. And,
2 again, the differences are shown on a previous slide, but
3 we -- the blue -- dark blue bars.

4 --o0o--

5 PROGRAM SPECIALIST III BEMIS: Okay. I told I
6 would talk a little bit about recalculations in the next
7 few slides in the back.

8 What I'm showing are various vintages of
9 estimates of gross greenhouse emissions for the year 1990
10 published in the various months that are on the horizontal
11 axis on this chart. And the value of course shown on the
12 vertical axis.

13 Our first one for 1990 was done in May of 1997.
14 And it's right around a hair over 450. Now, I had to --
15 this is in my report. I had to adjust units in some cases
16 because they might have been in carbon instead of carbon
17 dioxide or it might have been in short tons instead of
18 metrics tons. I converted all those, and the values are
19 shown in the report in various tables there.

20 But I thought it was instructive to take a look
21 at, okay, how does 1990 vary depending upon when we made
22 the estimates? And you can see that it went up in,
23 wherever that was, February or so of 1998; it went down a
24 bit in '02, which is the ICF inventory; it went up a
25 little bit in '05, which is my previous inventory; and

1 down a hair in now, December.

2 So numbers do vary. And because 1990 was such a
3 critical year, I thought I would use it to illustrate the
4 fact, in my opinion, there is a need to come up with a
5 good solid base line and -- it's difficult to do so. And
6 I wish ARB luck.

7 (Laughter.)

8 --o0o--

9 PROGRAM SPECIALIST III BEMIS: Now, this next
10 slide shows how -- basically that same information, but --
11 you're 1990 again. And that same information is shown in
12 the red line -- the solid red line at the bottom here for
13 the California inventory. And then the two lines above
14 that are gross and net national data for carbon dioxide.

15 And I'm -- you know, there have been
16 recalculations at the federal level too. And my point
17 with this one is ours might be a little bit greater, but
18 then we're talking about a smaller geographical area where
19 there might be other assumptions needed in order to come
20 up with a state level emissions inventory data.

21 And of course this is all done to 1998 just so to
22 have a common reference point, because each of the
23 inventories have done one in 1998. And so these are all
24 relative to one another to one point zero zero, a hundred
25 percent, being the value for 1998, just for plotting

1 convenience.

2 But there are needs to do recalculations and
3 there are -- they are done. And we need to develop
4 policies that are viable policies in light of the data
5 uncertainties. We shouldn't ignore our responsibilities
6 just because there are uncertainties, I guess is what I'm
7 trying to say. But there are uncertainties.

8 --o0o--

9 PROGRAM SPECIALIST III BEMIS: I have one more
10 slide, Commissioner. I'll apologize again. I didn't give
11 you this one. Or did I?

12 Okay. Good.

13 We had a comment that our national members didn't
14 look consistent with the -- our numbers didn't look
15 consistent with the national as much for California. So I
16 put this slide together just in the last few days to look
17 at each major sector for fossil fuel only, because the
18 U.S. EPA inventory for California is just fossil fuels.
19 So I compare residential, commercial, industrial,
20 transportation, electricity generation in state only, and
21 totals. And I'm sorry if it's hard to read this. But
22 there isn't a great deal of variability from component to
23 component and the numbers are fairly consistent. So I
24 felt this was a basically a way of checking what I had
25 done.

1 Now, I took out the international bunkers from
2 the CEC calculations because -- to make it consistent with
3 the -- the EPA, to make it consistent with the CEC,
4 because we took out the international bunkers and they
5 didn't. So I had to use my estimate of international
6 bunkers to take out the international bunkers from
7 transportation. I could have just added into our side, I
8 guess, and got the same result for comparison -- purposes
9 of comparison. But I should have probably added them to
10 my side instead of taking away from their side because
11 it's our number, not there's. I just put this together
12 yesterday. That's why I didn't give you -- have a copy of
13 it.

14 And I think that ends my portion of the prepared
15 remarks.

16 COMMISSIONER BYRON: Very good.

17 But we still have a just few more minutes. If
18 there's any final questions for Gerry -- He's been on his
19 feet for an hour and a half. We'll let him sit down.

20 Any questions?

21 PROGRAM SPECIALIST III BEMIS: And I guess I
22 would invite anybody, if they want to get into details of
23 "How'd you do this?" or "How'd you do that?" contact me
24 personally and ask.

25 COMMISSIONER BYRON: Gerry, thank you very much.

1 Well done.

2 Now, he's not going anywhere, and we'll still
3 have him for any additional questions. But I note by the
4 agenda our next speaker is Energy Commission Staff Al
5 Alvarado on greenhouse gas emissions from imported
6 electricity.

7 If I could just take a moment or two here. I'm
8 just -- you know, this is such a well informed audience
9 that we've got. I don't know that we do this kind of
10 stuff from the dais here.

11 Everybody knows what was taking place at the
12 Supreme Court yesterday. A little discussion -- who knows
13 what was taking place at the Supreme Court yesterday.

14 (Laughter.)

15 COMMISSIONER BYRON: Well, that's just a test on
16 raising your hands.

17 So, now, the next question is, if you were a
18 Supreme Court justice: Is CO2 a pollutant? Raise your
19 hand if you think it is.

20 Is it not a pollutant?

21 Who doesn't know?

22 COMMISSIONER BYRON: Thank you very much.

23 And of course none of that's reflected in the
24 record, right?

25 Too bad the justices don't have the benefit of

1 your input.

2 Al, it's all yours.

3 (Thereupon an overhead presentation was
4 Presented as follows.)

5 MR. ALVARADO: Thank you, Commissioner. My
6 name's Al Alvarado. I'm with the Electricity Analysis
7 Office here at the Energy Commission. I'm the team lead
8 for the staff that actually conducts most of the systems
9 analysis of the electricity system, not only just in
10 California but throughout the whole Western Electricity
11 Coordinated Council system.

12 The purpose of my presentation here today is to
13 provide you with some information on electricity imports
14 just to add perspective on the assumptions that Gerry
15 mentioned in his inventory report.

16 --o0o--

17 MR. ALVARADO: What I want to cover --

18 COMMISSIONER BYRON: Excuse me, Al. Are any
19 copies of your presentation out front?

20 MR. ALVARADO: Yes, actually there are some
21 copies up front. I have a few here for you.

22 COMMISSIONER BYRON: Thank you.

23 Thanks.

24 MR. ALVARADO: I want to cover several main topic
25 areas today, which I hope to give everyone a little bit of

1 an appreciation of the role of electricity imports, and
2 the difficulties related to quantifying the associated GHG
3 emissions.

4 I will be providing an overview of not only what
5 we know about electricity imports, but then I'd like to
6 touch on what we don't know.

7 I want to provide some context to -- on the role
8 of imports that they play here in California, the
9 electricity system and meeting California's electricity
10 demand. And I also want to discuss some of the
11 methodologies that have been used to estimate the resource
12 mix of imports.

13 --o0o--

14 MR. ALVARADO: Although electricity imports is a
15 smaller fraction of the total electricity used in
16 California, there are different sets of estimates on
17 generation resource methods that's serving these imports
18 and thereby the associated GHG emissions. For example,
19 I've seen estimates which claim that coal fire generation
20 represents over 20 percent of California's resource mix,
21 and there are also some lower estimates, you know, below
22 15 percent.

23 Since coal has a higher carbon content than other
24 fuels used to generate electricity, this method -- the
25 methods used to estimate associated GHGs can then have a

1 significant implication on the total inventory, at least
2 for electricity sector.

3 So we've initiated a study to better understand
4 electricity imports. The goal of the staff effort has
5 been to improve the methodology to quantify the mix of
6 generation certain in these imports, which I hope, you
7 know, that the goal here is to come up with a reasonable
8 methodology.

9 The methodology should capture -- should capture
10 both the market dynamics of a typical -- of the typical
11 electricity types of purchases, and as well as the
12 dispatch decisions that generally occur day by day.

13 We did prepare a staff report that was published
14 back in June that identifies many of these issues. So I'm
15 just -- today I'm just going to sort of breeze through a
16 lot of the content that's already in that report.

17 There was also a Transportation Committee
18 workshop back in July. The purpose of that workshop was
19 to receive public comments on the assumptions that we had
20 used to come up with our proposed methodology for the
21 resource mix.

22 Given some of the comments we received, I'm
23 actually currently working to update that staff study and
24 hope to release that report soon and propose to have
25 another either staff or committee workshop on what we end

1 up proposing for a resource mix.

2 --o0o--

3 MR. ALVARADO: So a little bit about what we know
4 and don't. The reported information on generation,
5 including utility transactions and imports, have actually
6 changed over the years. Actually before deregulation we
7 did have quite a bit of information on actual
8 transactions, which gave us quite a bit of information and
9 the ability to come up with certain estimates on the
10 resource mix.

11 Currently we have different information sources
12 that tell as a part of the resource mix story. What we do
13 have is we have the metered power flows between California
14 and out-of-state control operators. Unfortunately this
15 information is not really tied to any specific transaction
16 or generation source.

17 We do have electricity generation of fuel use by
18 power plant in California and also what's reported out of
19 state. So at least by point source we can come up with
20 estimates of the GHG emissions for each power plant.

21 We also have at the Energy Commission a power
22 source exposure program where each of the load-serving
23 entities do report their estimates of what is the
24 resources that's serving their customer loads, which is
25 generally then reported in most utility bills in terms of

1 their resource mix.

2 And a correction here. There is also the FERC
3 energy core of reporting system, where all market
4 transactions are actually reported to FERC. The
5 difficulty I've had in trying to weed through the many,
6 many transactions that occur and are reported is really
7 trying to track from the source; and many times that power
8 is actually traded in the market before it actually gets
9 delivered and used by any load serving entity.

10 So, really the bottom line that I have over here
11 is that there is really limited information on the
12 generation source of electricity imports. And that's part
13 of the main challenge that we have today.

14 --o0o--

15 MR. ALVARADO: I indicated that we do have
16 metered flows on the main interties that's reported to us
17 on a quarterly basis between the California independent
18 system operators and the out-of-state operators. And this
19 chart here, quite a jumble, is just to show what the --
20 power flows that actually exist. This one's on the
21 Pacific intertie and how it fluctuates up and down. We
22 have a zero mark on this graph here that showed that power
23 flows do go in the other direction. So power can go up
24 to the northwest as well as coming down. Again, the
25 difficulty we have with this information is there is no

1 way of tagging this to any specific transaction or the
2 source actually of the generation that's serving this
3 power.

4 --o0o--

5 MR. ALVARADO: This table, which I know is real
6 difficult for everyone to read -- I think in the handouts
7 we try to provide a larger print -- is the reported -- the
8 reported power flows, imports and exports to California,
9 by region, as broken up mostly in northwest and southwest.
10 Just to give of idea of, as Gerry had also indicated, that
11 we do -- there are exports or at least power flows going
12 out of state during times of the year.

13 --o0o--

14 MR. ALVARADO: So even though there really are no
15 mechanisms to track the actual transactions related to
16 these imports, we do know a little bit about the different
17 types of transactions that do occur. There are California
18 utilities that own some shares of generation that's
19 located out of state. There are long-term firm contracts
20 that -- some of which are source specific. And there are
21 entitlements such as the -- some of the cities do have
22 entitlements to power coming from Hoover.

23 There are also short-term purchases to satisfy
24 custom obligations. These short-term purchases can occur
25 from a day ahead, hour by hour, to as much as a year ahead

1 type short-term contracts.

2 LSEs and generators utilities will also purchase
3 on a short-term market, generally to cover unexpected
4 short-term variations. You know, you might have a hotter
5 summer than expected, unexpected outages. Folks will take
6 advantage of surplus. It does exist throughout the
7 western system.

8 And there's also what I call economy purchases.
9 Since there is quite a bit of surplus generation
10 throughout the west, and some of the sources do come from
11 either hydro or some of the more efficient new gas
12 facilities, you will have utilities or owners of
13 generation in California that have less efficient
14 facilities or at higher operating costs that will buy
15 power from time to time from the spot market to serve
16 their own needs instead of running their own facilities.
17 Actually this has been quite a large portion of the
18 transactions that have occurred in the past.

19 And the last type of import we have is just
20 wheeling through California. So you might have a
21 southwest entity that will purchase power from the
22 northwest. And the main path that we have to deliver that
23 power will be coming through the main -- it cuts through
24 to California.

25 --o0o--

1 MR. ALVARADO: This chart is just to give a
2 snapshot of the types of various -- of these year-to-year
3 variations of power purchases that have occurred over the
4 past several years.

5 In our past reporting regulations, we've had
6 utilities -- utilities had to report to us the power
7 purchases that they had from year to year and also from
8 each transaction. What's happened though, from year 2001
9 forward we've changed our reporting conventions to only
10 have the metered power flows.

11 But, anyways, these -- from year to year you'll
12 see that generation does jump up and drop -- up and down
13 occasionally. And this is usually due to a bit of market
14 dynamics. If there's a very flush hydro year in the
15 northwest, relatively cheap power, we'll generally find
16 that California utilities and generators will buy that
17 power. During a drought and some low water years, we'll
18 find that as imports drop, the California gas use for
19 electric generation does increase.

20 In year 2000 and 2001, those are anomalies since
21 that was during the crisis. So I think we had some
22 abnormal trading behavior that occurred in 2000 and 2001.
23 Although in 2001 there was a large drought in the
24 northwest.

25 COMMISSIONER BYRON: Al, those are

1 gigawatt/hours, correct, are the units on there?

2 MR. ALVARADO: Yeah, that's one thing I missed to
3 add on the charts. That's gigawatt/hours.

4 COMMISSIONER BYRON: That's all right.
5 Gigawatt/hours.

6 --o0o--

7 MR. ALVARADO: The next chart is the other types
8 of imports that we have. And this is the ownership
9 generation from -- that California utilities own located
10 out of state. And you can see, at least since 2001 to
11 2005, the generation from these facilities really do not
12 vary significantly. And this is a pretty steady stream of
13 what's generated and likely brought in to California.

14 The only difference now is that Mojave has
15 closed. So we'll have this -- the amounts of the imports
16 from these ownership shares dropping.

17 Actually all of these, except for Palo Verde --
18 Palo Verde's a nuclear generation -- the rest of these are
19 all coal-fired power plants.

20 --o0o--

21 MR. ALVARADO: Now, I do have limited information
22 in terms of contracts that -- where the generation source
23 is specified. And so this chart just -- this tail
24 represents that. I know that there is a contract with the
25 a power plant up in the northwest. And I understand that

1 there's also some coal-fired generation that's serving
2 some of the energy service providers.

3 --o0o--

4 MR. ALVARADO: So in tallying up, you know, what
5 we know about transactions, I tried to break it into two
6 main types of imports: The current imports, which
7 includes most of the ownership shares of current contracts
8 that we know about and entitlements; and then the system
9 imports.

10 What's more interesting here is that in the
11 southwest about two-thirds of the imports from the
12 southwest, which is current imports generation, that we
13 had a current good feeling and handle on. And so about a
14 third of it is what we call system imports.

15 In the northwest most of the system -- most of
16 the imports that we've been able to identify are actually
17 short-term market purchases system imports.

18 And the challenge that we have is really trying
19 to come up with an estimate of the resource mix that's
20 serving this system imports.

21 --o0o--

22 MR. ALVARADO: The main reason why it is so
23 difficult to really identify the resource mix that's
24 serving this system imports is that electricity's
25 typically traded between many market participants. I mean

1 a transaction can be -- go from one hand -- as I mentioned
2 earlier, from one hand to the next before it will
3 actually -- it makes its way to a purchaser in California.
4 So tracking the source -- there is just no information at
5 this point to track that actual source of the generation
6 for each of these transactions.

7 What we do know is most of the system purchases
8 are supplied by surplus electricity generation throughout
9 the west. And what we've attempted to do is come up with
10 estimates separately for both the northwest and the
11 southwest. Northwest, mostly because it's -- there's a
12 large hydro system that is managed by EPA. And
13 southwest -- southwest we have a lot of utilities with
14 generation as well as a lot of merchant generation's been
15 added recently in the past several years.

16 --o0o--

17 MR. ALVARADO: As Gerry indicated, I guess part
18 of your inventory you've used several different -- for
19 each group of years he used different approaches to --
20 from information available to estimate the resource mix;
21 to mean 1990 to '99 Gerry used estimates that we have
22 developed back in 1994 where we had actually quite a bit
23 more information, and we actually had some proceedings to
24 address this very same issue that we're talking about
25 today. Back then we were -- the Energy Commission -- we

1 had to come up with residual emission externality values.
2 Then we were trying to apply that to not only for
3 generation in California, but also the imports. And
4 research in externality values were relevant for planning
5 studies as well as for -- some of the tests were for
6 regeneration in California.

7 The resource mix between 2000 to the present has
8 actually used a different methodology. And it's a
9 methodology that actually came from our net system power
10 report. For simplicity's sake, what the staff had done
11 for the net system power report was just assume that the
12 generation average in each region is the same mix of the
13 electrons coming through California.

14 --o0o--

15 MR. ALVARADO: So in the net system power report
16 mix, so we'll find that in the southwest 58 percent of the
17 generation in the southwest was coal based. So the
18 assumption was that same percentage was attributed to the
19 imports in the southwest.

20 And in the northwest 64 percent was done on
21 hydro, so that same percentage was also attributed to the
22 imports of the northwest.

23 COMMISSIONER BYRON: Now, you may have said this
24 already, so forgive me. But of the 88,000 gigawatt/hours
25 of import -- and you've broken it down nicely -- what is

1 that as a percentage of total electricity consumed in
2 California, say, for that same area, approximately?

3 MR. ALVARADO: Imports represent probably
4 between -- just about 30 percent.

5 COMMISSIONER BYRON: Thirty percent. So that
6 would apply for last year as well?

7 MR. ALVARADO: Right.

8 COMMISSIONER BYRON: Okay. Thank you.

9 MR. ALVARADO: Now, the staff do believe that
10 there are limitations with the existing approach where we
11 used the average mix methodology. We do think that when
12 you -- when you just look at simple averages, it ignores
13 daily dispatch decisions that usually occur day by day
14 when a dispatcher decides which plants to ramp up and
15 which ones to turn down. It also ignores system
16 constraints, which we need transmission constraints or
17 requirements to run a facility at a certain location. It
18 also does not -- the averaging approach does not capture
19 the types of electricity market transactions that I was
20 trying to identify, you know, the short-term market
21 purchases versus a lot of the long-term imports.

22 So I do think that when you use averages, it does
23 tend to overstate the amount of assumed base-load
24 generation that's serving these imports.

25 You know, the concern that I had when using the

1 averaging approach is that the market stuff is about
2 knowing how the system generally operates. And generally
3 what utilities generally will do to serve their own
4 customer base is they will use their cheapest resource to
5 serve their customers. And when you look at a lot of the
6 base-load capacity here at the Western Region, like all
7 the coal plants, about 92 percent of all coal plants is
8 owned by electric utilities in the Western Region. And so
9 the general assumption is that they will be using as much
10 of that capacity possible to meet their own customer
11 needs. About 7 percent of the coal plants in the west is
12 owned by power producers that have long-term contracts
13 locked up with that generation.

14 So the part of the paper that we developed back
15 in June was to come up with a proposed methodology to try
16 to resolve some of these problems.

17 --o0o--

18 MR. ALVARADO: And our methodology we first used
19 identified the ownership generation, which I showed the
20 chart on. We've identified long-term contracts. And we
21 engaged in a system analysis to try to estimate the
22 associate generation serving the rest of the imports,
23 which is the system purchases that we identified.

24 --o0o--

25 MR. ALVARADO: What we've done in our system

1 studies -- and we have a simulation tool model where we
2 characterize every generation facility in the west -- in
3 California and often throughout the west. And what we've
4 done is to try to analyze what would happen if we reduced
5 imports to California, how would the system redispatch?
6 And since we know that base-load generations is usually
7 the lower cost resource, we've found out that most of
8 these large base-load plants really do not change their
9 operations from year to year and in our simulation studies
10 that we reduced imports. What we have found is that when
11 you reduced imports, at least from our studies, that
12 marginal generations will typically be the gas-fired
13 facilities throughout the west.

14 --o0o--

15 MR. ALVARADO: So the results of some of these
16 studies that's also included in our June report shows that
17 gas-fired generation that we've identified for the system
18 purchases is about 96 percent of the total imports, at
19 least from the southwest; coal generation is rarely on the
20 margin, so we would assume that coal generation is only
21 about 4 percent of the margin.

22 And so we applied these results, mostly the
23 southwest mix. And the northwest, we had to take -- use a
24 different approach to try to consider how the northwest
25 hydro system is dispatched and the role that hydro system

1 plays for serving spot market sales.

2 --o0o--

3 MR. ALVARADO: So in the northwest, we've
4 assumed -- we've done some correlation studies to see
5 that -- to show that the amount of imports from -- system
6 imports from the northwest will vary according to the --
7 there's a good close correlation between the hydro year
8 and the amount of imports in the northwest. So we've come
9 to a conclusion that hydro does play a strong role in the
10 northwest imports. And we've developed the assumption
11 that 50 percent of the system imports in the northwest is
12 hydro based. The balance is then assumed to be 46 percent
13 gas and the last portion would be coal imports.

14 --o0o--

15 MR. ALVARADO: We take these shares knowing what
16 we know about the ownership shares, of the generation, the
17 contracts, and then these allocations that we apply to
18 system purchases. This is sort of a distribution that we
19 have when we try to tag all of the imports in the north
20 from northwest and the southwest.

21 --o0o--

22 MR. ALVARADO: If I compare this to what we've
23 done in our net system power reports where we try to show
24 what, for example, coal -- the role coal plays as part of
25 California's total mix, we'll see that on the net system

1 power methodology where you use averages coal
2 will -- represents about 20 percent of California's total
3 electricity command. If we take this marginal generation
4 approach and as well trying to identify actual resources
5 from each of the ownership shares -- contracts, coal
6 represents a smaller fraction of the total -- 14.3
7 percent. Now that Mojave is closed, this percentage will
8 likely drop down even further, probably -- I haven't
9 estimated, so I'm guessing probably 12 percent or so.

10 --o0o--

11 MR. ALVARADO: Well, given our studies, we do
12 believe that this proposed methodology that I was talking
13 about that's presented in our staff report does provide a
14 better characterization than some of the other
15 methodologies we've used lately and some of the
16 estimates -- other estimates that others have provided.
17 However -- and I do think we're just sort of scratching
18 the surface here. We do think that there is more
19 information that's needed to refine the resource mix
20 estimates and the calculation associated with GHG
21 emissions.

22 The staff paper I mentioned, I did provide the
23 link to that staff paper if anyone wants to look at
24 details there. But we're also -- as I mentioned earlier,
25 we're also updating the staff paper to include some of our

1 more recent investigations. We did do some additional
2 simulation studies. We've also engaged in discussions
3 with some of the out-of-state regulators to try to
4 identify what actions they're taking to try to tag their
5 own electrons.

6 So we will be considering -- once we have this
7 report ready for publication, we will consider having
8 another workshop to receive any public comments on the
9 subject.

10 COMMISSIONER BYRON: Thank you.

11 It shows how difficult it is to determine or
12 estimate the generation mix for the state.

13 Thank you very much for the presentation.

14 We're going to take a break. But before we do,
15 if there's any questions -- we have a few minutes -- and
16 if you'd like to come forward and ask Al at this time,
17 please go right ahead.

18 But I'm going to anticipate the first question.
19 And, that is, that -- the Air Resources Board, I just want
20 you to know you can't have Al either.

21 (Laughter.)

22 COMMISSIONER BYRON: You can have his expertise
23 and his help. I just want to clarify that.

24 Go right ahead.

25 MR. BRINK: Steve Brink with California Forestry

1 Association.

2 Have you checked with the states of Oregon and
3 Washington to see if your methodology and mix, they would
4 tend to concur with or not?

5 MR. ALVARADO: Well, those are the folks that we
6 had most of the discussions with. You know, they have a
7 power source disclosure program similar to the ones we
8 actually have in California. So we've had a lot of
9 discussions. I think they agree in part with some of our
10 proposals. They would like us to embrace their numbers
11 too. But the shortfall that we've discovered in our
12 discussions, both their side and our side, is that they're
13 only looking at Washington and Oregon, and I think their
14 estimates only represent maybe about 70 percent of their
15 loads too. They're not including the portions that they
16 know comes from Canada, BC Hydro. And they have not made
17 any attempts to attribute generation and loads in Montana,
18 Wyoming, and Utah.

19 So, you know, when we try to figure out what's
20 going on in the northwest and try to color the electrons
21 coming in from the northwest, you know, there's still a
22 big gap there.

23 MR. SCHOONYAN: Gary Schoonyan, Southern
24 California Edison Company.

25 First of all, I want to compliment you on the

1 report. It's a very difficult -- very difficult to do
2 things along these lines.

3 The questions I had, one is the ownership share.
4 You talked about that. And in the import, I assume that
5 your import numbers include those ownership shares in
6 them. And then -- I say this from the extent that if you
7 look at the southwest, to the extent you pull the
8 ownership shares out using your marginal approach, you
9 would assume roughly about 96 percent of the energy coming
10 in would be natural gas and then 4 percent would be coal.

11 MR. ALVARADO: Right.

12 MR. SCHOONYAN: The other question I had -- or
13 actually I had a couple of other questions. One had to
14 do -- the report that Gerry went through talked about some
15 exports, exports from California out of state. And you
16 didn't address that here, but I was just kind of curious.
17 I would assume that the vast majority of those exports in
18 your resource -- in your research would be
19 natural-gas-based types of exports. Do you have any
20 thoughts on that?

21 MR. ALVARADO: We really haven't made an attempt
22 to try to also color the electrons going out of state.
23 But that would be my best guess. I would assume it's also
24 marginal generation, surplus since there -- and we are
25 pretty energy rich in California too.

1 MR. SCHOONYAN: And the final question is is
2 Gerry used a number for imports of 68 billion
3 kilowatt/hours areas you were using a number of 88 billion
4 kilowatt/hours for the year 2005. And I'm just curious
5 whether there was any attempt to reconcile those or --

6 PROGRAM SPECIALIST III BEMIS: I didn't do year
7 2005.

8 MR. SCHOONYAN: There was a thought -- all I know
9 is there was a chart that you had up there that --

10 PROGRAM SPECIALIST III BEMIS: The chart was --
11 the one I showed would be -- I showed like about 90
12 percent or so were basically net imports and that some
13 exports. And that was -- I don't remember what the dates
14 were -- it was from. I didn't include that in 2005, I
15 don't remember.

16 MR. SCHOONYAN: No, I seem to recall it was about
17 68 billion kilowatt/hours of imports versus the 88 that Al
18 had. I was just curious whether --

19 PROGRAM SPECIALIST III BEMIS: I don't know.

20 MR. SCHOONYAN: -- I heard correctly or
21 stopped thinking.

22 Thank you.

23 COMMISSIONER BYRON: That's a good point, Gerry.
24 And so let's -- off-line, but not now, let's take a look
25 at that as to whether or not there's a discrepancy in

1 those two numbers.

2 MR. ALVARADO: Gerry, maybe one point that I can
3 say, you know, is we have now a reporting convention issue
4 here. What we received in terms of imports is the power
5 flows that the independent system operators do report to
6 California. And Gerry even alluded to this, that Mojave
7 and Inter-mountain is actually reported to us as a part of
8 the California system operators.

9 So I'm not sure that there might be a little mix
10 of that, and that's why I tried to resolve in adding up
11 the total imports. I count power coming from Mojave and
12 Inter-mountain as part of the import.

13 MR. SCHOONYAN: Thank you.

14 COMMISSIONER BYRON: One more question. Then
15 we'll take a break.

16 Please introduce yourself.

17 MS. DOUGLAS: Karen Douglas with Environmental
18 Defense. Thank you very much for the presentation.

19 My question is whether your marginal generation
20 technique is limited to or more accurate with respect to
21 small reductions in imports and whether it's accuracy is
22 affected when you -- if you were to look at a larger
23 number of imports or if there is -- all imports.

24 MR. ALVARADO: This is what I want to -- we have
25 completed additional studies, and what are actually going

1 to be included in our update report. The additional
2 studies we've done is we've taken larger increments trying
3 to reduce the transport capability of imports to
4 California and see how the system would be dispatched.
5 They're not just small marginal amounts of imports. We're
6 trying to -- we'd reduce the import capability by as much
7 as what is typically delivered for system purchases.

8 And in this -- in the redispatch of the western
9 system, coal really was hardly touched at all. It was
10 mostly all in the gas generation.

11 Now, what's happened in the last five years is
12 there's been a large development of gas facilities, not
13 only in California but throughout the west. And Cal --
14 and the WEC system now has a very high reserve margin.

15 So it's most of these gas facilities that are
16 mostly commercial facilities, these are the generation
17 facilities that are typically on a margin at these -- even
18 at these large increments of imports.

19 MS. DOUGLAS: Thank you for that.

20 COMMISSIONER BYRON: Gerry, did you want to add
21 something?

22 PROGRAM SPECIALIST III BEMIS: I just want to
23 make one clarifying point. In the table that Al showed
24 with a net system power, where was that?

25 Percentage is right here.

1 We used this approach, the net system power
2 approach for the year 2000 forward to 2004. And so we did
3 use that for the market portion of the imports. For the
4 1990 to 1999 time period we had to fill in that using the
5 assumption from the previous work. But we did use this
6 resource mix approach for 1990 to 2004 -- or 2000 to 2004
7 where we had the information.

8 COMMISSIONER BYRON: Great.

9 Well, Al, are you -- unless you have anything
10 more to add, we're going to go ahead and take a break. Is
11 that all right?

12 MR. ALVARADO: No, that's fine. I think I made
13 my -- passed on my message, which is that there is quite a
14 bit of uncertainty when we're trying to have a good handle
15 on it in terms of mixing imports.

16 COMMISSIONER BYRON: Excellent presentation.
17 Thank you very much.

18 It's 11 o'clock. We'll take a break till 11:10.
19 And we'll reconvene with the next item on the agenda.

20 11:10. Thank you.

21 (Thereupon a recess was taken.)

22 COMMISSIONER BYRON: If you all take your seats,
23 we'll go ahead and get started again.

24 The meeting is about to begin. If you'd take
25 your seats please or take your conversations outside.

1 Okay. This is your final warning. We're going
2 to go ahead and start here.

3 Gerry, if you'd lead the pack. Thank you.

4 I'm just trying to keep us on time out of respect
5 for all the individuals that are here today. We
6 appreciate very much that you're here. I know it always
7 takes a lot of effort to come to Sacramento if you're not
8 already here.

9 I wanted to tell you that if you did not get
10 copies of the presentations, that they will be available
11 on the website.

12 And I do have to apologize. About 11:30 I'm
13 going to step out for a little bit. And I think Susan
14 will stay until -- I think she has to step out at about
15 noon. So I apologize for that ahead of time.

16 At this time we're going to move to the 11
17 o'clock item on the agenda. And I'd like to introduce
18 Webster Tasat.

19 I've not met Webster before until this morning.
20 He's from the Air Resources Board. He's going to be
21 talking about the transfer of the greenhouse gas inventory
22 responsibilities for the Air Resources Board.

23 Webster, welcome. And I hope you'll take a
24 minute to introduce some of the fellow staff members that
25 are here from the ARB.

1 MR. TASAT: I will. Thank you very much,
2 Commissioner Byron and Commissioner Brown.

3 There are a number of people from the Air
4 Resources Board here today.

5 I would like to point out Peggy Taricco. She is
6 a branch chief of the Emission Inventory Branch in the
7 Planning and Technical Support Division.

8 We also have a number of staff people that are
9 going to be very instrumental over time in working towards
10 developing our greenhouse gas inventory.

11 And what I'd like to do is just start off by
12 again thanking the Commissioners as well as thanking you
13 for inviting me here today to make a few remarks.

14 I do not have a presentation. And there's some
15 reason for that. Primarily the -- hearing going to occur
16 tomorrow, which I'll be busy working on. And I'll get to
17 that in just a moment. But it sounds a little bit
18 mysterious.

19 My name is Webster Tasat. Again, I am the
20 Manager of the Emission Inventory Systems Section at the
21 Air Resources Board. And for those of you that don't know
22 what that title necessarily means, I always like to kind
23 of start off by defining that a little bit. A lot of
24 people don't understand what a emission inventory systems
25 is. What does that mean?

1 Well, the Air Board -- my section's
2 responsibility is to compile the criterion toxics
3 inventory for the Air Resources Board and to manage the
4 database system now on-line, tools for storing and
5 forecasting emission estimates. And that's sort of for
6 the technical system aspect of emission inventory. So,
7 thus, the name Emission Inventory Systems Section.

8 Okay. First I'd want to thank Gerry Bemis and
9 the Energy Commission for inviting me to participate here
10 today in the Energy Commission's workshop. And of course
11 you've all heard by now, I'm sure, about AB 32 and the new
12 programs it will create in California.

13 I think part of what the ARB needs to accomplish
14 over the next 12 months involves development of a
15 greenhouse gas inventory. And while the Air Board has had
16 extensive experience developing criteria pollutant and air
17 toxics inventories, we have really never compiled a
18 greenhouse gas inventory. And that's why the input that
19 the Energy Commission staff has provided and explained how
20 they assembled their inventory has been invaluable to us
21 as we move forward in implementing the mandates of AB 32.

22 The Air Board is now charged with compiling the
23 state's greenhouse gas inventory. But we need a starting
24 point. And that starting point is the Energy Commission's
25 inventory.

1 One of our goals in implementing AB 32 is to
2 continue to provide a comprehensive greenhouse gas
3 inventory which will meet our current and future program
4 needs. Since the Energy Commission is the state's lead
5 agency for forecasting energy use as well as maintaining
6 historical energy data, there will be an ongoing need for
7 ARB staff to work closely with Energy Commission's staff
8 to obtain that energy -- statewide energy data and for use
9 in building this comprehensive inventory.

10 We also intend to work collaboratively with the
11 Energy Commission staff to further understand their data
12 sources, methodologies, and documentation used in
13 developing the 1990 to 2004 greenhouse gas inventory; and,
14 furthermore, to collaborate on research productions.

15 So what's next for California's greenhouse gas
16 inventories as it transitions from the Energy Commission
17 to the Air Resources Board? The Air Resources Board has
18 begun to look at the 1990-2004 draft update on the Energy
19 Commission's website in October. Once we officially
20 assume the responsibility for the inventory in January,
21 our plan is to post the Energy Commission's inventory to
22 our website, again as a starting point. Right now we're
23 at the stage where we're looking at the categories to get
24 some handle on what they represent and what types of
25 sources they might include.

1 Over the next few months we'll be doing a more
2 in-depth review and assessment of the recommendations that
3 the Energy Commission staff included in the 1990 to 2004
4 inventory as well other recommendations for potential
5 improvements based on ARB staff review and comments we
6 received from a variety of stakeholders, including other
7 state agencies, environmental organizations, industry, and
8 the environmental justice community.

9 And this points to the extensive public process
10 we intend to implement as we maintain and update the
11 greenhouse gas inventory, particularly with respect to the
12 1990 emissions level inventory and the 2020 emissions
13 limit discussed in AB 32.

14 Our public process will include workshops and the
15 formation of a work group to assess possible improvements.
16 We look forward to Energy Commission participation in as
17 many of these workshops and work group meetings as
18 possible to share the experience they've had in preparing
19 the state's greenhouse gas inventory.

20 And that leads me to my last brief point, that
21 some of you might certainly already be aware of. And,
22 that is, tomorrow is our first workshop that the Air Board
23 is hosting to discuss the inventory and mandatory
24 reporting elements of AB 32.

25 We'll be discussing the 1990 statewide greenhouse

1 gas emissions level and establishing the 2020 greenhouse
2 gas target for the state. There is also a presentation
3 that will be given on mandatory reporting.

4 I invite all of you to join us this Friday,
5 tomorrow, 9:30 to 12:30, at the Cal EPA building, 10th and
6 I, for our first public workshop related to the inventory
7 reporting elements of AB 32.

8 And, finally, I'd again like to thank the Energy
9 Commission staff, especially Jerry Bemis, for inviting us
10 here today to participate. And we look forward to working
11 with everyone at the Energy Commission in the months and
12 years ahead.

13 Thank you.

14 COMMISSIONER BYRON: Okay. Well --

15 MR. TASAT: Any questions, I will try and field
16 them.

17 COMMISSIONER BYRON: All right. If you've got --
18 if you've saved up any tough questions --

19 (Laughter.)

20 COMMISSIONER BYRON: -- this would be the time,
21 either today or tomorrow.

22 Are there any questions? We've got plenty of
23 time here and we're going to -- please, go ahead and step
24 forward.

25 And we're going to also go into public comment

1 here in general. But if there's specific questions for
2 Webster, please.

3 MR. NORDHEM: Mark Nordhem with Chevron again.

4 It may be too early for you to be able to answer
5 this question. But there was in presentation earlier a
6 reference to the fact that you would be doing a bottoms-up
7 inventory or some sort of a hybrid or -- you got any
8 reactions to --

9 MR. TASAT: Yeah, what we're doing is we're going
10 to be looking at bottom-up approach of course. But we're
11 also going to be considering a top-down approach as well
12 in tandem. We're going to -- how we're going to apply
13 those inventories depends on how the programs evolve.
14 We're going to use the best inventories available for the
15 specific needs of the individual programs.

16 I think if you're asking, you know, is one going
17 to dominate over the other, I think it's a little too
18 early to make that judgment right now. But there's going
19 to be certainly the need for both types of inventories and
20 so we're going to be looking at both.

21 MR. NORDHEM: And in your brief remarks, you
22 talked about workshops and work groups. Could you expand
23 on what a work group is?

24 MR. TASAT: Well, that's a good question. We
25 will have more detail tomorrow on that. We're still

1 working out a lot of the logistics and kind of the
2 dynamics of how that's going to come about. But it is a
3 part of a grander public process to be all inclusive and
4 allow people, industry groups, environmentalists, EJ
5 communities to provide input on methodologies and how
6 we're developing this inventory, the 1990 level, the 2000
7 target and such.

8 MR. BEEBE: Bud Beebe with SMUD.

9 In looking at the biodata in front of you and the
10 methodologies that the CEC has used over the years and so
11 forth, do you -- could you now already forecast the types
12 of information that you'll continue to rely on the CEC to
13 provide? I'm thinking particularly of the import
14 electricity markets since that's something we're real keen
15 on.

16 MR. TASAT: Well, you know, in terms of what
17 information they'll provide us, we're working
18 collaboratively with them. They obviously are the state's
19 lead as far as energy data. So I can't see how we would
20 necessarily progress without their involvement. Exactly
21 how that's going to pan out, how much data and what types
22 of data, we're still looking at that.

23 MR. BEEBE: So I take away from that that you're
24 going to have a pretty close relationship in how all of
25 the energy flows and energy data could affect your

1 specific database on greenhouse gas emissions?

2 MR. TASAT: I'd say that's a fair statement.

3 MR. BEEBE: Thank you.

4 COMMISSIONER BYRON: Any additional questions?

5 Webster, thank you very much.

6 MR. TASAT: Thank you.

7 COMMISSIONER BYRON: And I hope you'll stay for a

8 little bit. Public comment, I suspect, may also be

9 valuable for your organization as well as ours.

10 We're going to go ahead and move to the 11:30
11 item on the agenda, Public Comments. Although we've been
12 doing lots of opportunity for Q and A during this session,
13 if you have something that you wish to say or any
14 additional questions, now would be the time?

15 And so I welcome anyone to step up to the podium.

16 MR. BRINK: Steve Brink again from California
17 Forestry Association. I represent nearly all of the solid
18 wood products industry and many of the biomass power
19 plants that are left here in California.

20 I submitted detailed written comments to the CEC
21 Inventory of California Greenhouse Gas Emissions in Sinks
22 yesterday in the docket office. So I'll limit my -- it's
23 in great detail. My oral comments today I'm focused
24 primarily on line 15 of Table 6, which is on page 25,
25 which is specifically about emissions in sinks associated

1 with forest lands.

2 Point No. 1: I'm going to start with the
3 assumption that it's in the best interests of everyone to
4 be sure the inventory is accurate to the best of our
5 ability. Please take comments today in that regard. But
6 it's in our interests to make it as reflective of reality
7 as we possibly can. Without an accurate comprehensive
8 picture of the emissions in sinks, then the credibility of
9 the whole process I think will be in question.

10 Point No. 2: Line 15 of Table 6. Intensive
11 forest management has been lumped with ag crop lands, as
12 near as I can tell. We believe that that's a mistake. It
13 should be separated. And the reason I think that it
14 should be separated is because there's a huge potential
15 opportunity for forest management to sequester large
16 additional amounts of carbon and reduce the number of
17 acres burned and wild fire that create emissions. If it's
18 separated, it would be much easier to see the potential
19 opportunity.

20 Point No. 3: You'll see from line 15 that forest
21 management is shown as a net emitter, when in fact -- I'll
22 show you here in a second, if you account for the carbon
23 over time, you'll find that intensely managed forests are
24 not -- a net sink, not a net emitter.

25 Hence, we believe the inventory is wrong, and we

1 believe it's wrong because the forestry protocol is wrong.
2 The reason protocol is wrong is that it assumes when a
3 commercial size tree is cut, all the carbon in that tree
4 is immediately emitted to the atmosphere. Reality is that
5 70 percent of the carbon in that tree is in a solid wood
6 product held right here on the surface of the planet for a
7 century or more, and the other 30 percent is in pulp
8 paper, landscaping materials, or biomass and electricity
9 generation at a controlled combustion power plant.

10 So that's why we think the protocol needs work.
11 And we will be submitting a formal response form to the
12 registry and to CARB to reconsider the forestry protocol.

13 Point No. 5: And I believe this point tracks
14 across all products. The inventory stops tracking carbon
15 when you produce a product. I just showed you the wood
16 example. The protocol stops when the tree is cut.

17 I believe the same is true if you look at
18 concrete. The inventory tracks the carbon associated with
19 cement production. But it doesn't go on and track the
20 carbon to produce the concrete that makes the pillars in
21 this building and most other buildings.

22 And so I'm not totally clear on this. This is
23 not my strong suit. But I'm very concerned that plastic,
24 aluminum, steel, concrete, et cetera, are not accurately
25 displaying the actual emissions associated with creating

1 that product and using that product.

2 And I bring this up because not only does it
3 bring into question whether the inventory is valid or not
4 in terms of total emissions, but it also again masks our
5 ability as a state to look for opportunities for emissions
6 reductions. And the reason I say that is, it's very clear
7 in the literature that plastic, aluminum, steel, and
8 concrete require at least 250 percent more fossil fuel
9 energy to produce the product than if you used a wood
10 equivalent product. So there's an enormous potential
11 offsets possibility here that can't be seen by just
12 looking at the inventory.

13 Point No. 6: If you look at Table 6, and I guess
14 line 2. Between 1990 and 2004 it looks like roughly we're
15 trying to find 40 million tons of emissions reduction in
16 order to get back to 1990 levels. Now, it's probably a
17 little higher than that when you look at 2005 and 2006
18 inventories.

19 But if it's roughly 40 million tons, let me point
20 out -- and this is Point No. 7 -- if just 40 percent of
21 California's 40 million acres of forest lands were managed
22 for multiple uses including wood production, using a 90
23 year period for calculations, we could be sequestering
24 over 8 million more tons of carbon per year right here in
25 this state than we are today. And the reduction in the

1 amount of acres burned from wildfire from having healthy
2 forests resistant to catastrophic fire would be at least
3 another 1 million tons per year of carbon.

4 So if we manage just 40 percent of our forest
5 lands, we could be sequestering up to 9 million tons or
6 more or, in other words, 23 percent of the state's goal to
7 get back to 1990.

8 Point No. 8: The numbers I just talked about do
9 not include the potential opportunity of the offsets,
10 using wood instead of concrete, steel, plastic, or
11 aluminum.

12 Point No. 9: And I'm about to finish here.
13 Point No. 9's my summary. Let's get the inventory right
14 because it's extremely important.

15 Point 2 within Point 9: The forestry protocol
16 does not currently reflect the real world. So let's get
17 it right.

18 And I suspect there are other protocols that need
19 adjustment as well. And the result is the potential
20 opportunities are enormous if we get the inventory right
21 and get it displayed in a manner that the policymakers can
22 easily see what the potential opportunities are and make
23 reasoned choices.

24 Point 10: Obviously if we want to take advantage
25 of the forests that we have in California, it would take

1 dramatic changes in state and federal forest management
2 policies. But it could make dramatic contributions to the
3 goal.

4 And, last, I haven't touched on the value of
5 biomass power plants to generate electricity in comparison
6 to fossil fuels. I could go on for an hour or two. But
7 Table A4 it's not clear to me if that has been totally
8 accounted for, again, in terms of an offset. We know that
9 burning wood to create electricity I think carbon neutral
10 is a reasonable protocol to use.

11 It looks like the other emissions that were of
12 interest have been accounted for. But the information is
13 not displayed in a manner that you can easily see the
14 value of using biomass to generate electricity versus
15 natural gas or coal or some other fossil fuel. In other
16 words the offset.

17 In the interest of time to let somebody else have
18 a shot, I'll stop there, and leave it to the readers of my
19 written comments to get the rest.

20 Thank you.

21 COMMISSIONER BYRON: Thank you. Thank you for
22 your comments and taking the time to prepare them.

23 Gerry or Al, would either of you care to comment
24 on what you just heard?

25 Okay. Not necessary, but if you'd wish to.

1 PROGRAM SPECIALIST III BEMIS: Yeah, I think the
2 most beneficial if you and were able to sit down and go
3 through your comments together, because I'm not sure I --
4 maybe when I see the written comments, it will be clearer
5 to me.

6 But I think maybe one of the points that you're
7 bringing up is the fact that -- your point was cement.
8 What we show in the inventory is cement associated with a
9 klinker production at a rotary kiln at a cement production
10 plant. Fuel used to transport and deliver or even heat
11 the process are not included. That's just carbon dioxide
12 from the cement klinker production step. It's an example
13 of a weakness, if you will, of a top-down inventory where
14 we have all the fuel use aggregated elsewhere, either in
15 the industrial sector or in the transportation sector,
16 depending upon whether or not the fuel is used to heat the
17 process or transport the product.

18 And my point is it's not excluded.

19 MS. BROWN: Mr. Brink, I want to also comment. I
20 do appreciate your comments. And it's fair to say that we
21 need all the tons we can get, and we'll be looking very
22 carefully at all of these sources. And I would also
23 encourage you to work directory with the California
24 Climate Action Registry on those protocols. I know your
25 industry did weigh in considerably when they were

1 developed. There was a lot of give and take then and
2 there's always room for improvement. So thank you.

3 MR. BRINK: Okay. Thank you.

4 Yeah, we did and also with WinRock International,
5 who's one of the prime consultants in this agreement. We
6 will continue to do so.

7 MR. JOHN: My name is Ivor John of Ryerson,
8 Master & Associates.

9 I want to comment that one of the applications of
10 the statewide inventory is to provide cities and
11 communities -- local communities within the state to
12 develop their own community-wide emission inventories,
13 from which they can then develop mitigation strategies as
14 communities. I know that several areas and communities in
15 the state are active on this.

16 One of the challenges of doing that is finding
17 ways to prorate the data from the state level down to the
18 regional level. And having done this a couple of times,
19 I'd like to say it's generally possible to do it for most
20 of the sectors and categories in the inventory. But there
21 are a couple of which are challenging. And those are the
22 industrial sector, the electric generation sector, and the
23 transportation sector.

24 As the inventories transition to the Air
25 Resources Board, I think there's a real opportunity to

1 make this easier by marrying up the statewide greenhouse
2 gas inventory with the statewide criteria pollutant
3 inventory that the ARB has, because there's a lot of tools
4 and techniques you can use from both that help to get you
5 there. But there's a breakdown right now particularly in
6 that industrial sector that makes it difficult to really
7 tease out what's going on.

8 So my comment is to -- directed really at the Air
9 Resources Board to say here's an opportunity to enhance
10 the database by marrying them and harmonizing the two that
11 are out there.

12 Thank you.

13 COMMISSIONER BYRON: Thank you.

14 MS. TRELEVEN: Kathy Treleven, PG&E.

15 I wanted to echo a comment I think I've heard
16 from several folks here, that the expertise of the CEC is
17 needed very much in terms of imports as this transitions
18 to the ARB.

19 PG&E has relatively modest market out-of-state
20 purchases. But if you look at our sector, our utility
21 sector as a whole, I believe that that 30 percent of
22 out-of-state purchases makes up something like half of the
23 historical carbon load for our sector. So it's very
24 important to us that these numbers get done correctly.
25 And I'm glad to hear that the ARB is ready to work with

1 the Energy Commission. And I would encourage the Energy
2 Commission to hold that second workshop.

3 Thank you.

4 MS. BROWN: Thank you, Kathy. We appreciate your
5 vote of confidence.

6 (Laughter.)

7 COMMISSIONER BYRON: Thank you.

8 Please.

9 MR. PAK: Would it be all right if we sat?

10 COMMISSIONER BYRON: Sure, if the microphones
11 work.

12 Please go ahead and introduce yourselves.

13 Just press the button and green light.

14 MR. PAK: For the record, my name is Al Pak. I
15 represent Sempra Energy Global. I have with me John
16 Fooks, who is Sempra Energy Global's expert on carbon
17 emissions and will be our principal analyst at all of the
18 state proceedings related to this topic.

19 By way of introduction I should tell you that
20 Sempra Global represents those companies in the Sempra
21 Energy family other than the utility companies, which are
22 developing their own positions and policies. So I speak
23 for our generating company, our independent retail service
24 provider, our LNG company, and our pipeline company as
25 well as our trading trusts.

1 COMMISSIONER BYRON: Hang on one second. We'll
2 just check your microphone.

3 MR. FOOKS: Can you hear that?

4 MR. PAK: I pushed the wrong button.

5 We wanted to address you this morning with
6 respect to a very specific issue that has been raised in
7 several proceedings over the last two days. And that has
8 to do with the calculation of life cycle emissions related
9 to delivered electricity in natural gas.

10 Generally what this issue relates to is going
11 beyond the direct point source type carbon emissions that
12 you would associate with the consumption of electricity or
13 natural gas and going back further on the source. It
14 comes up in a couple of contexts, one of which you heard a
15 lot about today. And that would be the import --
16 imputation of carbon emissions to imported power.

17 We've been working with your staff to give them
18 our views on the methodologies that you would use to
19 assign an appropriate level of emissions to the
20 unspecified power that we bring or we don't actually know
21 what the source is, but it's sort of in a mix of system
22 power.

23 The second context that it has come up in relates
24 to the imputation of emissions along the full delivery
25 chain associated with liquefied natural gas. That is

1 going all the way back to the point of extraction to the
2 gathering system, then to the liquefaction facility, to
3 the transport -- the international transport chain, the
4 regasification facility, and then the domestic delivery
5 system that's used to deliver to the end user.

6 I suppose you could go back further on your
7 imputations of indirect emissions to imported power as
8 well as to domestic natural gas supply. But we haven't
9 heard anybody call for that yet. I suspect that it would
10 be consistent to do that.

11 But as you develop that kind of an inventory, a
12 more expansive inventory, we have been suggesting to all
13 of the state agencies that are dealing with AB 32
14 structural regulatory developments, that for compliance
15 purposes you have to be very careful in how you use these
16 imputations in terms of setting the targets and goals and
17 objectives for both the state program as well as the
18 compliance obligations and responsibilities of the
19 regulated entities.

20 And specifically we've been talking a lot about a
21 principle that is embodied in the language of AB 32
22 related to ensuring that whatever the regulations
23 California adopts, either by the ARB or if you were in
24 cooperation with CEC and the PUC, that the programs be
25 developed in a way that would be consistent with

1 international, perhaps a national or regional or other
2 state programs.

3 And essentially what "consistent" means in this
4 context would be to the extent that an entity in the chain
5 outside of California to which regular imputations might
6 occur if there is a directly applicable regulatory program
7 to which entities further upstream are regulated, assuming
8 that they are in compliance with their obligations under
9 those other jurisdictional programs, that somehow you
10 accommodate compliance obligations.

11 As an example, in the LNG context, we do know
12 that Indonesia is one of the original signatories to the
13 Kyoto protocols. That is the source gas that at least for
14 the Semptra Energy portion of the Coastal Azul project
15 which would be operational in January of 2008. And they
16 are taking steps to comply with their obligations as an
17 annex 2 country.

18 So we have been talking with the proponents of
19 this life cycle emissions inventory proposal to take into
20 account that there is a good deal of compliance activity
21 going on further upstream of the California border. And
22 to the extent that, say, the Kyoto protocols are met by
23 the Indonesians or any of the other constituent parts of
24 the LNG delivery chain, that California ought not regulate
25 those emissions a second time. That is, those molecules

1 ought to be regulated once and only once.

2 But we haven't -- as we've just begun our
3 investigation of what other jurisdictions in both the
4 electric industry and the gas industry are doing with
5 respect to compliance with non-California programs, we
6 don't have specific proposals for anybody on how to do
7 that accommodation and how to make the California program
8 consistent with those other programs.

9 But we hope to be bringing both the ARB, this
10 Commission, and the CPUC some ideas. I would only note
11 that there seems to be some disagreement amongst the
12 agencies themselves. And I was at the prehearing
13 conference on Tuesday afternoon at the PUC and about three
14 minutes after the CPUC administrative law judge indicated
15 that PUC at least would not be considering life cycle
16 remissions for natural gas, the ARB representative said
17 that they would in any event.

18 I think you could go ahead and do it in the
19 inventory at least for informational purposes. But when
20 we get down to the point of providing the compliance
21 obligations and structuring how people go about doing
22 things in setting the goals, caps, and the ability to
23 tread around those caps, we should probably be thinking
24 very carefully about whether the full inventory of life
25 cycle emissions should be regulated in the California

1 program.

2 So with that, if you have any questions -- and
3 John is our expert on how those other emissions outside of
4 California are inventoried and taken into account in both
5 the California climate registry rules as well as the
6 various other rules -- we'd be happy to answer any
7 questions about where we are today.

8 MS. BROWN: Well, I had a comment. I was
9 listening very carefully to what you said. I have four
10 words in response: "Easier said than done."

11 Having personally participated in the cap and
12 trade work group at Cal EPA, I know there are a lot of
13 issues that -- dealing with the linkages, with other
14 programs, internationally and nationally. And we wish we
15 had a national program. We don't yet have such a program.
16 And certainly there is an intent to achieve consistency in
17 the way things are reported, again as a goal, as an
18 objective.

19 But we appreciate your comments and look forward
20 to working with you, both through this venue -- and today
21 we're only talking really about the inventory process --
22 and in the larger context of the climate action team, of
23 which my boss, Commissioner Boyd, is an active member.

24 MR. PAK: We understand that it's difficult and
25 we're still trying to get our own minds around how you

1 would do that. And that's why we don't have a proposal
2 for exactly what consistency this context ultimately looks
3 like in terms of the regulations. But, you know, we do
4 have a lot of ideas and we are trying to work within the
5 nations particularly on this one.

6 COMMISSIONER BYRON: Thanks, Mr. Pak. Don't go
7 away. You know, the double accounting issue cuts both
8 ways. And so we really appreciate your comments.

9 Will you be providing some written comments as
10 well?

11 MR. PAK: The reason I was very careful to say
12 that we don't represent our utility company is that Sempra
13 Energy hopes to provide a corporate-wide position on this
14 issue. And at the present time the various methods that
15 you could use to figure out what California regulating
16 entities should be responsible for is in dispute as
17 between the two sides of our house. We can try to
18 reconcile those within --

19 COMMISSIONER BYRON: Wait and show the parent
20 company to catch up.

21 MR. PAK: So I don't know if we're going to file
22 written comments. If we do, it would only be to reserve
23 the issue and bring it to your attention. And we brought
24 it to the attention of both the ARB and the PUC.

25 COMMISSIONER BYRON: Great. And thank you for

1 being here.

2 In addition to be giving our responsibilities to
3 the ARB, as we're required to do, we'll also be giving
4 them some of our process. So I hope you continue to stay
5 involved. I'm sure they'll be glad to entertain your
6 input.

7 MR. PAK: Thank you, Commissioner.

8 COMMISSIONER BYRON: Thank you.

9 Do we have any other public comments?

10 Okay. We're well ahead of schedule. I guess
11 lunch takes a priority.

12 Before you all leave though, I think that Gerry
13 may have some conclusions and next steps that we wishes to
14 go through.

15 Is that correct?

16 PROGRAM SPECIALIST III BEMIS: I was just going
17 to basically thank everybody for participating --

18 COMMISSIONER BYRON: That's it? That's your
19 conclusion?

20 (Laughter.)

21 PROGRAM SPECIALIST III BEMIS: Anybody who
22 doesn't -- anybody who wants to talk about any particular
23 aspect of the inventory, in general, in depth, between now
24 and the end of December, when I hope to write -- I guess
25 all I was going to say was my goal is to get this report

1 finished and out the door by Christmas. So that January
2 1st it goes over to the Air Resources Board.

3 And so if anybody wants to talk to me
4 individually and look at any particular aspect of the
5 inventory, I need to do it now, and -- so I can get the
6 reports finalized by December.

7 COMMISSIONER BYRON: Gerry, thank you. Thank you
8 both, Jerry and Al.

9 Susan, do you have something you want to say?

10 MS. BROWN: Yeah, I just wanted to ask Jerry:
11 Did you establish a deadline for additional written
12 comments on the inventory documents so that you can
13 complete your work by Christmas?

14 PROGRAM SPECIALIST III BEMIS: I believe it's in
15 the notice package. And I don't remember the date on it.
16 It might have been December 5th.

17 MS. BROWN: Close of business Monday, December
18 4th.

19 PROGRAM SPECIALIST III BEMIS: I'm flexible. I
20 do need to get the report done by the end of December.

21 COMMISSIONER BYRON: All right. Again, thank you
22 all very much for coming and for your input.

23 And we will continued to work closely with the
24 Air Resources Board. We wish you good luck in taking over
25 this responsibility.

1 Thank you all for coming.
2 (Thereupon the California Energy Commission
3 Transportation Committee meeting adjourned
4 at 11:50 a.m.)

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1 CERTIFICATE OF REPORTER

2 I, JAMES F. PETERS, a Certified Shorthand
3 Reporter of the State of California, and Registered
4 Professional Reporter, do hereby certify:

5 That I am a disinterested person herein; that the
6 foregoing California Energy Resources Conservation and
7 Development Commission meeting was reported in shorthand
8 by me, James F. Peters, a Certified Shorthand Reporter of
9 the State of California, and thereafter transcribed into
10 typewriting.

11 I further certify that I am not of counsel or
12 attorney for any of the parties to said meeting nor in any
13 way interested in the outcome of said meeting.

14 IN WITNESS WHEREOF, I have hereunto set my hand
15 this 31st day of July, 2006.

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23 JAMES F. PETERS, CSR, RPR
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